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OF
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A QUARTERLY REVIEW

OF

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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—PHILOSOPHICAL DEVELOPMENT.

By Professor A. CAMPBELL FRASER.

IN contemplating the historical development of speculative philosophy we must recollect the ultimate problems of primary human interest which the philosopher tries to solve. There are three central ones of this sort, concerned severally with God, Man and Matter, in subordination to which the others may be arranged. Each of these three is so connected in reason with the others that, while a philosopher may put any one of them in his foreground, he cannot separate it entirely from the other two. Let us look for a little at each.

I. It is told of Bishop Butler that, in conversation one day with his friend Dean Tucker, he suddenly put the question,—whether communities, and even whole nations, might not be seized with fits of insanity, just as individual men sometimes are. “I thought little,” the Dean shrewdly adds, “of that odd conceit of the bishop at the time; but I own I could not avoid thinking of it since, and applying it to a good many cases of nations and their rulers.”

Butler’s ‘odd conceit’ suggests the philosophical problem about God. For the question about the insanity of nations

might be expanded and translated into this form :—‘ Why may not the Universe, into a dim perception of which we all awake in the first exercise of our senses,—why may not the universe, in its ever-changing phenomena of matter and mind, be really the manifestation of Power that either is insane or that may become insane? Have we any guarantee against the insanity, the irrationality of the supreme directing Power, and the consequent absence of reason from the nature of things? How can we justify the faith of common sense, which, alike in daily life and in the experiments, previsions and verifications of science, assumes that we are living in a Cosmos; for may it not at last turn out that we are living in a physical and moral Chaos? Why may not the supposed order in nature, or reason in the nature of things, turn out to be purposeless unreason and illusion; so that all our reasonings about things—all our mental assertions and denials even—become paralysed and worthless?’

Descartes, who represents the rise of the modern spirit, was led into philosophical speculation by the pressure of questions akin to these. We all know how he came to ask himself whether he was really justified in presupposing, as all people practically do, that the strange world into which sense-perception introduces us cannot be illusion, and must be valid experience. May it not be an expression of unreason, or else of the malignant calculations of the Power by which its changes are determined? Why should the omnipresent influence be wise Reason, and not blind caprice or meaningless contingency? Yet, in conduct as well as in our scientific previsions, we indulge the faith, that law or reason is latent in nature, and indeed only thus could things be reasoned about or experienced.

Much of the philosophical speculation that we find in history is the issue of endeavours to find what can be answered to questions of this sort. Reflective men have indulged in it, because they wanted some ultimate guarantee that the worlds of nature and spirit are not, and cannot become, insane, and thus unfit to be experienced intelligibly. Philosophy has accordingly in our own day largely taken the form of a reasoned criticism of experience from within. It tries to show the coherence of experience, as an organic unity that is so in harmony with itself that no rightly exercised human understanding can ever be put to permanent confusion by its latent contradictions. In other words, it is an endeavour to exhibit God or perfect reason latent in all, by articulating the divine reason and moral

purpose according to which all physical and moral experience is constituted,—thus unfolding the intellectual secret that is in the heart of things. The philosophical conceptions of the universe as universal reason into which some reflective persons thus rise is *their* philosophy. In their case the problem in the foreground is concerned with God.

II. But a humbler inquiry than this has drawn others into philosophy : an inquiry in which Man—not τὸ πᾶν, the All, with order, reason, purpose therein immanent—is the immediate object. For inquiry into the intellectual and moral capacity, the origin and destiny of man is a potent factor in stimulating reflection,—in the recognition that men each emerge at birth, separately and alone, out of the darkness of unconsciousness, and that individually we gradually advance more or less into the light of self-conscious personality and an always incomplete knowledge, all which at death seems to relapse into unconsciousness. This self-conscious life, between birth and death, is virtually *our* universe for each of us, knowable by each under the conditions implied in this transitory glimpse. What, then, are the limits within which this merely human knowledge of the appearances presented by reality must be contained, and what its certainty or trustworthiness? If all human understanding of things is necessarily disproportionate to the reality, is this imperfect experience of any real worth to its possessor? And what is the origin and final destiny of the individual self-conscious persons who, in the interval between birth and death, receive this incomplete experience? Is each to continue for ever in its separate conscious individuality, or do we all relapse into the darkness of unconsciousness from which we emerged for our hour into the conscious life in which for us eternity differentiated into time and change? Is each man a 'mode' of the One Being which, whether insane or not, whether transcendently conscious or unconscious, is at least conscious in those modes of itself that we call 'persons'? What, on the whole, is the meaning for me of the thus limited self-conscious experience in which I now find myself, and out of which I cannot rise; and what conduct is obligatory on me individually, and as included in the organism of Society, by virtue of this meaning? Such questions as these about Man have in all ages, but especially in the modern world since Locke, been powerful motives to philosophical reflection. Indeed, the philosophical questions about Man are mainly three—What we now are? How we have

become what we now are? What we shall individually become hereafter? Of these three the second, treated as a question of natural science, is the most prominent just now in the popular mind. Yet surely the other two have more philosophical relevancy and human interest. For if we find ourselves endowed now with a spiritual constitution, with reason and conscience, and will and sense of responsibility, each of these in a limited degree; and if the active reason in each enables each in some considerable degree to forecast the future, then it less concerns our highest relations to know by what physical steps mankind have become what they now are,—whether by sudden acts of what is popularly understood by ‘creation,’ or by the slow, continuous process, at once natural and supernatural, called ‘evolution,’ which is a constant (it may be unbeginning) creation. Man being what he is, he does not become other than he is, because physically he is the issue of unconscious organisms which have themselves been evolved from molecules of matter. For he is this only at the point of view of natural or physiological science, which cannot as such entertain the philosophical, which is the theological, problem about Man and Nature. Natural science inquires what the processes in external nature are, according to which, or conditioned by which, man as we find him came to be what he now is, and it tries to determine the organic law of these processes. Philosophy, on the other hand, asks whether there is law or order in nature at all, and why; and whether man in his present constitution does not share in the spiritual or supernatural through his will and reason, as well as in nature through his organism. Thus science, within its own sphere, can never conflict with religion and philosophy. Its utmost discoveries can only illustrate them. All this suggests the third great philosophical problem, which puts Matter in the foreground.

III. For we find that we are individually separated from one another, through personal connexion with the solid and extended organisms in which we each become conscious of separate personal existence, and mediately also of the existence of other separate conscious persons more or less like ourselves. That is to say, we live and move and have our being in a world of sensible things, which occupies space (whatever that may mean), and with which, in and through that small organised portion of it which each calls ‘his own’ body, we are daily in contact and collision. Now, what does this mean?—this matter and

energy which thus environs and expresses the self-conscious activities that are associated with it in the system of nature? We think of the phenomena that are presented to our sight and touch as manifestations of 'something,' as qualities of a substance which we call Matter. But what is this 'something' to which we attribute the manifestations which greet our senses? Are we who are percipient of the manifestations, along with our whole self-conscious life in all its spiritual contents, only one sort of manifestation of the solid and extended substance which we touch and see, a sort which breaks forth under special conditions of physical organisation when nerve-tissue is somehow irritated? Are natural force and the (so-called) 'agency' of matter its own self-existent and independent endowments, in virtue of which it blindly operates without reason or purpose?—Or is the reverse of all this true? Are the things of sense, with their supposed natural powers, only modes in which the immanent yet transcendent Reason expresses itself, while it is itself the cause and explanation of the universal and eternal prevalence of law, order, reason in nature, whether mechanical laws like gravitation or physiological laws like evolution? In the ultimate analysis of philosophy, does matter and energy come out as the primary principle,—self-consciousness, which finds this out, being only secondary or derived; or is self-conscious spirit the original reality, and, in the deepest and truest sense, the 'real'? On this second alternative, does the 'world' of sense, with its so-called 'laws of nature' and 'natural agents,' presuppose the constant creative agency of Active Reason,—nature being thus throughout and always supernatural as well as natural in its orderly evolution or continuous creation; interpretable only in part, and only in its mechanical relations, in physical or natural science, but, when viewed philosophically, found to involve the immanence of Supreme Reason and the purpose of Perfect Will? May not the final end or purpose of the material world, in the successive integrations and disintegrations of its unbeginning and unending evolution, be—to enable finite or individual conscious spirits to become aware each of his own existence, to become cognisant of one another, and to become more distinctly conscious than at this stage of their existence they could otherwise be of the eternally active Reason and Will in which we all live and move and have our being?

To the questions in each of these groups the epistemological inquiry of Locke and Kant, as to the *extent* of

human knowledge, applies. Can any *man* say that he *knows* the true answer to them, or that he can do more than accept the most probable of the possible hypotheses by which the problem might be determined? Can any theories about the origin of the universe, and of its 'natural' laws, or about what the actual laws are according to which its phenomena are determined—be it law of gravitation or law of evolution or any other,—can any such conclusions be absolutely demonstrated? Can more be found out by man than that some one conclusion is immeasurably more probable than any other conclusion that is conceivable; and that, accordingly, until it is disproved, or shown to be less probable than some other, it ought in reason to be believed? Does our belief that the sun will rise to-morrow rest at last on a firmer ground than this, or (more generally) our belief in any alleged event in the past or future history of the universe? Can physical or natural sciences, as formed by man out of an experience that is presupposed to be essentially or ultimately reasonable, ever be for him more than systems of conclusions determined by a balance of probabilities?

Much of the human value of philosophical inquiry consists in its making the thinker even conscious of questions like these. If he fails to find complete answers, his mind is at any rate widened when he realises how they underlie the whole surface of common experience. The questions are latent in the individual mind till they are made patent by reflection, when it is quickened into exercise by sympathy with the great reflective minds of the ancient and modern world. And reflection leads into one or other of the three questions about God, Man and Matter:—Is Reason, or is purposeless unreason, at the root of things and of my individual life? What am I; what can I know and do; and what shall I become? What is the deepest and truest meaning of the sense-presented, or visible and tangible, world with its 'natural' laws?

The human interest of constructive philosophy consists in its being the progressive issue of continuous effort, on the part of a few persons in each age, to think out for themselves adequate and coherent ideas concerning their destiny and duty in a universe presupposed to be rooted in reason and goodness. The philosopher differs from the man of ordinary common sense only in that he tries either to *articulate* in system the reason and goodness that is presupposed to be expressed in the behaviour of things; or else to show articulately why, in consequence of man's merely

finite point of view, the articulation cannot be fully worked out into perfect unity of system, but must for him remain 'broken,' or a mysterious faith, even at the last,—unless the human individual can rise into Omniscience, and see what exists from the Divine Centre.

When we turn from the problems of philosophy to the actual history of man's philosophical endeavours and their results, a curious, even pathetic, spectacle is presented. Instead of an attained "vision of the world and the wonder that shall be," we see a Sisyphus-like toil—sects of thinkers, in controversy with one another, exhausting their strength and ingenuity in the production either of 'systems' or of sceptical negations that wax and wane—that dissolve almost as soon as they are formed—to be replaced by others, or by the old ones in new forms. A perennial discussion of the same problems, in manifold verbal expressions of them, few in number as appears when we penetrate beneath the varied ways of stating them; which receive in the course of ages similar, but dissimilarly expressed, sets of discordant solutions, or else a similar announcement of their permanent insolubility, from rival sects—none of the offered solutions or insolubilities finally annihilating its rivals. And all the while, the spontaneous or unreflective living experience of men, of which philosophy, generated in the minds of the few, should be the ultimate intellectual interpretation, maintains itself independently of them all from generation to generation.

There is a pathos in the birth-throes of successive philosophies, put forth, often dogmatically, by their projectors, as the deepest and truest explanations of the intellectual secret of man's life in the universal system of things; with the joyous anticipations of their sanguine authors, each confident that the 'secret,' or at least the way to find it, has been at last revealed to *himself*. To confine illustrations of this to modern philosophers, we find Descartes confident that he had found a method destined to solve the ultimate problems as certainly, as luminously, as the mathematicians of his day were solving problems of abstract number and quantity; or Malebranche, pictured by Fontenelle as obliged anon to turn his thoughts to something else for relief from palpitation of heart produced by sanguine sympathy with the intellectual perspective which Descartes had partially opened to his view; or Spinoza, confident in his demonstration of a unity which seemed to reconcile the duality of thought and extension left unexplained

by Descartes ; or Leibniz, aglow with his discovery of the universal order in the continuous development of monads, according to the established harmony of the sufficient reason ; or Berkeley, carried away in astonished enthusiasm at the comprehensive sweep and simplicity of his new philosophical conception of the meaning of matter and its powers, and of the sensible world—a conception which was to relieve scepticism, and remove sectarian divisions from philosophy in all future time ; or Kant, with his promise of victory to the often disappointed philosopher, if he would turn over a new leaf under Kant's guidance as the Copernicus of the intellectual world ; or Fichte, in the confidence of infallible truth, imprecating judgment on those who should reject his new Idealism ; or Ferrier, with his demonstrations which were to illuminate the universe from "stem to stern" ; or Hegel, with his dialectical evolution of the rational organisation of Nature and Spirit, produced almost contemporaneously with the pan-phenomenalism of Comte, who, like Hume, relegates all constructive philosophy—theological or metaphysical—to the limbo of illusions which belong to the earlier and ruder stages of man's history. This Sisyphus-like toil of over-confident theorists has landed the generation in which we live in a war of cross-purposes between two confident extremes—those at the one extreme proclaiming that All is light, in a fully articulated reason, and those at the other extreme that All is at last lost in the darkness of unreason ; each remaining equally confident in their constructive and in their negative conclusions, after hearing the argument on the opposite side.

Deeper insight into the meaning of this historical drama, and more candid interpretation and appreciation of opposed tendencies, may perhaps so transform the scene as to make it less discouraging to those who are now about to make their own fresh adventure on the ocean of philosophy, in an honest search for the best intellectual expression of that on which our lives, and our beliefs (without which we cannot live), rest in the end. It is surely only one side of the truth that David Hume proposes when he says, that every philosophy owes its success to its novelty, and that it is no sooner canvassed with impartiality than its weakness is discovered. Philosophies seem to the superficial observer of history to pass away without leaving a trace of their transitory dominion. He fails to see in their succession the long education of human understanding ; or the adaptation of each to the particular age, with its characteristic experience,

in which it flourished. For, after all, surely through the sects and systems of the past an unceasing, if often an unconscious, "purpose" (unconscious often to the philosophers themselves) has all the while been running, so that the philosophic thought of mankind has gradually "widened with the process of the suns". All true-hearted intellectual endeavour must advance that purpose, while it educates the individuals who engage in it. So long as we "sit still," we are, according to the Greek sage, "never the wiser," but "by going into the river, and moving up and down, we discover its depths and shallows". If we exercise and bestir ourselves we may, even in this life, discover something of its philosophic secret, although we may not fully realise the Divine or Perfect Insight.

For, has not the seemingly confused and self-contradictory philosophic past really been a struggle between, on the one hand, successive Idealistic Constructions, in which the secret of Real Existence is professedly evolved out of a single principle, and, on the other side, the different phases of Sceptical Nescience—materialistic, pan-phenomenalistic, agnostic—with their pessimist despair of the immanence of reason or rational purpose in things? And is not the perennial issue of the struggle—as Idealisms are gradually widened and corrected by sceptical criticism and by enlarging human experience—a gradual approach to the philosophy which corresponds to the true intermediate between absolute Ignorance and the Divine Idealism, which in its infinity evades the philosophic grasp of a human understanding? Has not the philosophic drama—especially as enacted in the last two centuries since the publication of Locke's *Essay*—been a struggle between two antithetical conceptions of man's intellectual relation to the universe, which is issuing, by a composition of forces, in a deepening reverence at once for the facts and the mysterious rational implicates of his physical and spiritual experience? Are educated men not now becoming more ready to acknowledge that "things are what they are, and not other things than they are"; and to ask themselves "why, therefore, should we allow ourselves to be deceived?" Thus one seems to hear three conflicting voices throughout these centuries. The response made by one of these to the three great philosophic questions is:—"I can *see nothing*, nor even reason for having faith in anything, beyond the momentary, ever-changing data of sense";—adding, nevertheless, with monstrous inconsistency, 'I *have* faith all the same in the inductions of physical

science, so as to be sure that the sun will rise to-morrow, although this future event has not been a datum either in my senses or among my conscious states'. A contrary utterance to this comes from another voice:—'*I can see the universe through and through*, in the light of its immanent rationality, and am so in possession of its secret that I am able to dispense with faith, by rising into a philosophy that moves in a sphere aloof from the irrelevant events and probabilities of the changes in space and time'. These two voices are apt to overbear the third, with its recognition, as the final lesson of reason, that individual man can understand only 'in part,' even although possession of any knowledge seems to imply that the whole should be seen in order that the part even may be visible. 'I see enough,' it proclaims, 'to justify to reason the *faith* that I am living and moving and having my being in a universe in which the merely natural is subordinate to, yet in harmony with, the moral and spiritual order and purpose which my higher being requires; and I also find that the more I cultivate this faith by philosophical reflection the better I can see the little that can be conquered by practical reason, and the more wisely I can shape my life.'

The first of these three voices is that of the philosophic Sceptic or Pessimist, who in modern times has essayed, in the words of David Hume, "a sceptical solution of sceptical doubts," under the self-contradictory name of Agnostic Science. The second is the voice of Gnostic Omniscience, in which the speaker confesses, nevertheless, that he fails to bring the 'probabilities,' on which man's life turns, within the range of his Omniscience.

The impossibility of remaining in a state of universal scepticism, which is logically incapable of either speech or action, on the one hand, with the failure, on the other hand, of the successive attempts to see All in the light of a single rational principle—or, as we might say, to see All from the Divine central point of view—is what leads the philosophic thinker who recognises ineradicable facts of moral experience to enter the *intermediate* path. Here he may deepen his intelligent sense of the reasonableness of the universe, sufficiently, at least, to justify inductions of natural and spiritual laws, which, when so justified, are more than 'leaps in the dark,' since they are then made in the philosophical assurance that facts and events can never put our physical and moral intelligence of the universe to permanent confusion. To follow this path,—intermediate

between complete Nescience and Divine Omniscience,—is to recognise that men, who are the individual thinkers of all human philosophies, are neither mere animals nor identical with God, but are, through their sense-organisms, sharers in nature, while, through their active reason, they participate in the Divine. A philosophy which looks only to man's *organic* participation in *nature* is logically atheistic, or at least agnostic, and, if logical, is in the end completely nescient. A philosophy which sees the infinite macrocosm in our microcosm, and thus fully identifies itself with the divine knowledge, is logically acosmic and pantheistic. But what is man, as Pascal asks,—in the spirit of the philosophy of the intermediate,—what is man amidst the realities which encompass him? In one view he seems individually lost in Infinity: in another view he is as Nothing. He must therefore be the medium between these extremes—alike distant from the Nothing from which he was taken, and from the Infinity in which he seems to be swallowed up. The intermediate is thus characteristic of all our faculties. We are equally unable to know all and to remain ignorant of all. The words applied by Bacon to theology seem also to apply to the only permanent philosophy that man is capable of having regarding the universe of his sensuous and spiritual experience:—"As for completeness in Divinity it is not to be sought. For he that will reduce knowledge into an art or science will make it round and uniform; but in Divinity many things must be left abrupt." So too we may have philosophy, but not a philosophical system which explains all.

Take an illustration of this composition of philosophical forces. It was in reaction against traditionalism, and the dogmatic or uncritical demonstrations of the schools, from which neither Bacon nor even Descartes had fully emancipated themselves, that, for example, John Locke, at the commencement of the philosophic era in which we live, sought—by his polemic against "innate" ideas and principles, and by his analysis of the genuine ideas and certainties and probabilities that are gradually attained in the exercise of our faculties—to administer a check to a *priori* assumptions, unwarranted by experience, and to empty verbalism. Locke invited a new philosophical departure. He began by recognising that every philosophic thinker, as human, has to occupy an intermediate position between the animal and the Divine, where his knowledge must come "far short of a universal or perfect comprehension of what

science is," and at which, for the most part, "probability only is to be had, which is sufficient to govern all our concerns". This was a departure from the point of view of a human Epistemology, not in abstract Ontology. Philosophy had previously been recalled to this human or intermediate ground by sceptical pressure, in hope of finding relief from doubt or nescience in a deeper and truer estimate of man,—for instance, in the Socratic reaction against the agnosticism of the Sophists. In Locke's case it was with the opposite motive of testing traditional dogmatism by reason and experience, so as to clip the wings of Idealistic Omniscience, which, by help of verbal abstractions, concealed from itself its own failure to eliminate all mystery, and to substitute perfect rational insight for faith and presumptions of probability.

That Locke was moved mainly by the second motive explains much in his *Essay*, and in that evolution of thought onwards to this day which *his* recall of philosophy to the intermediate may be said to have inaugurated. For his proposal that we should examine our own abilities, and see what objects our human share of understanding is or is not fitted to deal with, was made, not because he found the current of opinion in the latter part of the seventeenth century running towards a sceptical despair of the power of human understanding to make any way at all in the interpretation of the data of human experience, or because he wanted to make men more intrepid in their speculations. It was for an opposite reason—because he suspected that men claimed, under the name of "knowledge," more than could be justified by a true philosophy. He found that they had been "letting loose their thoughts into the vast ocean of Being, as if all that boundless extent were the natural and undoubted possession of our understandings, wherein there was nothing exempt from its decisions, or that escaped its comprehension". The *Essay* is virtually an inquiry whether past failures to reach truth may not be due to our assuming, either as uncritical traditionalists or as dogmatic rationalists, to put ourselves virtually at the Divine or central point for viewing the universal reality, instead of seeing that our human individuality necessarily withdraws us, as it were, from the centre, and keeps us at the side, where much must remain out of our sight, and where things, under finite relations of time, must appear at a different intellectual angle. He accordingly inquired what could be seen from the side-position, or from the point which men, as finite persons, have to occupy intellectually. The *Essay*

thus returns again and again to the contrast between the few points of light or knowledge within our human horizon, the many points at which we have only the dim twilight of probability, and the boundless realm of darkness which surrounds both ;—all suggesting the moral advantage to us of dwelling much throughout our philosophic thinking upon the enigma of a human life, in its intermediate between Ignorance and Omniscience.

It was perhaps inevitable that Locke, disposed by temperament as well as by his surroundings to keep before him the danger of dogmatic claims to something like omniscience rather than the danger of sceptical despair, should be more apt to see the weakness of human understanding and the limits of human experience than the abstract constitution of the Universal Reason in which man shares, or even the distinctive facts of his moral and spiritual being ; and that his own philosophy should thus draw more towards the extreme of Nescience than of Omniscience. All this was in the spirit of the age in which he lived, and of which he was eminently the intellectual representative. In the latter part of the seventeenth century, the presuppositions of dogmatic theology, supreme in the middle ages, followed by a century of theological controversy and religious wars, were becoming objects of free criticism. At the same time, the tendency to bring every belief before the tribunal of the merely generalising understanding, judging according to the categories of sense only, was gaining strength in England, through the astonishing rise of mechanical science of external nature. Thus the philosophy formed by its representative mind, in an age when philosophic imagination was weak, and which was reacting even in excess against the pressure of the Past, was naturally disintegrative in its influence more than constructive and idealistic. Locke's aim was to dissolve and disperse empty verbalisms and the prejudices inherited from the Past, which he assailed under the name of "innate ideas" and "innate principles". He wanted to induce a collapse of verbal formulas and dogmas that were imposing themselves in the place of "experience"—not sparing even Descartes and Bacon. When he engaged in his *Essay*, Cartesianism had been passing into Spinozism, and all along its course it seemed to Locke to be too much a "letting loose of thought in the vast ocean of Being". Even Bacon's sanguine anticipation of a coming science of nature which should disclose its "fixed, eternal, universal principles" seemed to Locke to need the check which he so often administers in the *Essay*, to those

who vainly imagined the possibility of a "demonstrable" physics; and there, in support of this check, he insists upon man's inevitable *a priori* ignorance of the relation between the innumerable secondary qualities of matter and its few primary qualities.

Accordingly, one is not surprised that Locke, as the philosophical spokesman of his own age and indeed of the eighteenth century, was unconsciously led towards that narrow and incomplete conception of man, and his insight of things, which represents him as ending in sense and empirical understanding, generalising according to sense. Imagination, spiritual reason, emotion, conscience and thinking will,—on all which the *comprehensive* settlement of philosophical questions depends,—are left out of sight, or, at least, are attenuated. An experience that *ends* in sense and empirical generalisation must end incoherently and must contain the seeds of nescience, through its oversight of the larger and richer human life that is due to the factors of our moral and spiritual experience—often latent in individual men—which are the key to a metaphysical interpretation of the universe at the human or intermediate point of view. From hence come to us—

"Those shadowy recollections,
Which, be they what they may,
Are yet the fountain light of all our day,
Are yet a master light of all our seeing;
Uphold us, cherish, and have power to make
Our noisy years seem moments in the being
Of the Eternal Silence: truths that wake
To perish never;
Which neither listlessness nor mad endeavour,
Nor man, nor boy,
Nor all that is at enmity with joy,
Can utterly abolish or destroy".

It was thus the tendency of Locke's philosophy—a protest on behalf of the right and duty of the human understanding to judge according to "experience"—to send the main current of thought in the eighteenth century in the direction of analysis and disintegration. Accordingly, before the middle of the century, constructive philosophy disappeared in Hume's "sceptical solution of sceptical doubts". Hume thus called out Kant in *his* turn, to resume, at a different point of view, the epistemological problem which Locke had tried, in the iconoclastic and empirical spirit of the time, to solve in the interest of individual liberty, to understand according to "experience". (In the ambiguity of the term experience lies the ambiguity of Locke's philosophy.) The

course of European thought from Locke to Hume represents the disintegrative tendency, even as that from Hume, through Kant, to Hegel tends steadily towards an idealistic integration or construction. But this composition of the philosophic forces, within the last two hundred years, has surely on the whole deepened and enriched the philosophy of mankind; and it may correspondingly educate the minds of those who, as students of its results, try to re-think the destructive and constructive speculations which have been developed in its course. The two centuries since Locke correspond in significance in modern philosophy with the memorable century of Socrates, Plato and Aristotle in the ancient world; but the one era originated in reaction against scholastic dogmatism, and the other in reaction against the scepticism of the sophists.

The conscious realisation, in the mind of an individual man, of a philosophy or philosophical system, must of course depend upon the actual intellectual development of that individual. The ultimate interpretation of self-conscious life and the universe which prevails among thinking men in any age or country thus depends upon the degree in which the spiritual faculties, originally latent in each of us, are then and there drawn forth into conscious exercise. When—as for the most part in the eighteenth century—external observation, mechanical association of ideas and empirical or merely generalising understanding are the mental characteristics, while the higher spiritual faculties are left in their latency, as at birth, then the prevalent philosophy inevitably tends to a self-contradictory scientific agnosticism and to theological nescience. On the other hand, when reflective thought is exaggerated, so as to leave the sense-faculties comparatively dormant,—as with some mediæval and some modern schoolmen,—abstractions then supersede concrete things and persons, and the resulting philosophy is a web of speculations, ingeniously spun out of the philosopher's thoughts, in disregard of the moral facts which would leave the thought abrupt. But the philosophy which corresponds to the spiritual experience of the complete man illustrates at once the need and value of the empirical methods in their own sphere, as well as their harmony with that of the natural sciences to which they lead, in subordination to the universalising reason, which sustains faith in God and connects us with the infinite. "Those," says Leibniz, "who give themselves up to the details of sense and to the external sciences usually despise abstract speculation and Idealism. Those, again, who

live among universal principles rarely care for, or appreciate individual facts. But I," he adds, "equally esteem both." Bacon, too, profoundly remarks, that "those who have handled knowledge have been too much either men of mere observation or else abstract reasoners. The former," he continues, "are like the ant; they only collect material and put it to immediate use. The abstract reasoners again are like spiders, who make cobwebs out of their own substance. But the bee takes a middle course: it gathers its material from the flowers of the garden and the field, while it transforms and digests what it gathers by a power of its own. Not unlike this is the work of the philosopher. For a true philosophy relies not solely on the power of abstract thinking; nor does it merely take over the matter which it gathers from natural history and mechanical experiments, only to lay it up in the memory as it found it; for it lays it up altered and digested by the rational understanding. Therefore, from a closer and better considered alliance between these two faculties—the empirical and the rational—such as has never yet been fully realised, much may be hoped for philosophy in the future."

Thus it is that each person, according to the completeness of his developed humanity, is the measure of the philosophy which *he* is able to attain to, or in other words, to verify by his own consciousness. This is the measure of the system which he individually can either form for himself, or as a student mentally assimilate and rise into. One who has been accustomed to conceive reality only under the mechanical categories of physical science—who sees in *ultimate* causality only the necessary connexion of phenomena with *preceding phenomena*—cannot even entertain a spiritual philosophy, any more than one born blind can imagine colours in their varieties. We have Darwin's remarkable confession of his own loss of spiritual insight, through exclusive habits of external observation and scientific specialism. "I well remember my conviction," is his touching testimony, "that there is more in man than the mere breath of his body. But now the grandest scenes would not cause any such convictions and feelings to arise in my mind. It may truly be said that I am like a man who has become colour-blind; and the universal belief by men of the existence of redness makes my present loss of perception of not the least value as evidence." Other testimony might be quoted to the dormant state in individuals of the faith in natural law and order, through an exclusive study of the universe from the supernatural point of view. It is thus that

those factors of the complete mental experience of man,—of the physical and also of the rational or spiritual experience,—which find no response in merely empirical generalisations in the one case, or, in the other case, in an interpretation of the supernatural as what is inconsistent with nature and natural law, instead of (as it may be) comprehensive of both—it is thus that one or other of those two factors subsides into latency, or perhaps never comes into consciousness at all in the individual. God is concealed, not revealed, by the world of the senses when its phenomena *alone* are apprehended,—as by the scientific specialist, who disregards the immanence of the supernatural or metaphysical in all nature. Only when he rises above this mere specialism does the (otherwise merely empirical) observer possess the mental material, so to speak, which gives their meaning to the words that express the fundamental ideas of the spiritual and intelligible world. Cardinal Newman (whose name I introduce with reverence) truly remarks that it is “a great question whether Atheism is not as consistent philosophically with the phenomena of the physical world, *taken by themselves*, as the doctrine of a supreme thinking Will; and whether it is not, so far, the consistent philosophy of those who close their eyes to all beyond the phenomena of the senses and their succession, without realising in their own consciousness any deeper or truer experience than this”. An empty ‘Something’ behind sense-appearances is in fact the only ‘God’ recognisable by one who looks only to the phenomena of sense and their laws,—thus turning his back upon the rational constitution and ultimate unsystematisable facts of physical and moral experience, and so leaving undeveloped in himself the supernatural elements of universalising Reason and conscious recognition of free responsible Will.

This imperfect one-sided experience in the minds of individuals is, of course, common in times of extreme devotion to the sciences that are concerned only with external nature,—like that in which we are now living, or like that into which Locke entered when, with his early medical training and utilitarian disposition, he began to philosophise for himself. “The mere mechanical philosopher” (*i.e.*, the specialising physicist), says Berkeley, in *Siris*, “inquires properly concerning the rules and modes of operation alone, that is, the connexions between facts and coexisting or preceding facts, and not really concerning their originating Cause; *for nothing mechanical is or can be a Cause.*” He professes to ‘explain’ phenomena of sense by means of

other phenomena of sense only. He thus becomes blind at last to the truths that all such (so-called) 'explanations' need themselves to be explained; that the special laws of nature, and the very fact and presupposition that there *is* law and not chaos is part of the philosophical problem; and that an insight of the *ultimate* explanation presupposes the higher faculties of reason, conscience and will, with their correlative faith, in active exercise, all making their contribution to the individual's stock of verifying experience. After this education is accomplished, is not man found in fact *not* to end in sense, and in merely mechanical conceptions of the data of experience? Are not moral reason and free intending will even supreme in the idea of the human microcosm;—and so, by analogy, rightly concluded of the Macrocosm, as also therein supreme? Is it not our duty then to think of the universe in which we live and move and have our being, as rooted in moral Reason and free intending Will, so that, in the deepest meaning of 'reality,' only the spiritual can be called real?

Thus it is that an inadequate education of the individual spirit leads to an inadequate, that is, to a sceptical or agnostic, philosophy. When, in consequence of this incomplete education, the word 'cause,' for example, *can* mean to the individual no more than 'antecedent or coexisting phenomena,' then man himself, regarded only as a part of nature and as thus sufficiently explained, is consistently enough dealt with as only one kind of natural organism, all in him that a deeper insight verifies as essential having been eliminated. For a part of man, doubtless, may be measured by natural science; men are partly animals, and so within its range. Yet, if man shares also in universalising reason and in thinking will, if he is the creator of acts for which he is responsible, then he also shares in the supernatural and divine; and even 'Nature' itself, whether within or outside the human organism, could not be what in our sense-experience it is found to be, without the immanence of the metaphysical or supernatural in its very constitution.

These considerations may help to show why successive philosophical systems, and also the philosophies which are not complete systems but left 'abrupt,' have one after another failed to verify themselves in the mental experience of mankind—why, in consequence of this, they have waxed and waned throughout the ages. Moreover, an

honest attempt to comprehend the universe in the light of its really ultimate conceptions is the most arduous enterprise in which a person can engage. Its even partial success requires a completeness or catholicity in the verifying mental experience which cannot be reached, still more cannot be sustained, without the pain of that fatigue which is inseparable from reflection. The very entertainment in consciousness of the problems (or questions) of philosophy is fatiguing. Accordingly, philosophical words, emptied of their once intended meanings, which it was so hard to think and to retain in living thought, are apt, as meaningless sounds, to be substituted for the philosophical insight of the man of genius who adopted them to express what *he* consciously meant. Through this natural indisposition to continuous reflection, the philosophical successes of epoch-making thinkers are lost almost as soon as a 'new' system has been verbally adopted by the mob of men, with their narrow experience and half-developed spiritual life. Like a sudden transitory flash of light, the discovery of philosophic genius becomes obscured even in the mind of the philosopher himself in his less reflective hours. Hume's account, in his *Treatise of Human Nature*, of the disappearance from his mind of his own sceptical philosophy, after he returned from his chamber of meditation to the common affairs of life, is an extreme illustration:—"Where am I," he asks in his philosophic mood, "or what? From what causes do I derive my existence, and to what condition shall I return? Whose favour shall I court, and whose anger must I dread? What beings surround me; and on whom have I any influence, or who have any influence on me? I am confounded with all these questions. . . . But nature herself cures me. . . . I dine, I play a game at backgammon, I converse and am merry with my friends; and when, after three or four hours' amusement, I would return to these speculations, they appear so cold, and strained, and ridiculous, that I cannot find in my heart to enter into them any further. . . . These are the sentiments of my spleen and indolence." Fichte's life supplies another illustration. Indeed, all, I dare say, whether philosophical geniuses or not, who have honestly tried to think the universe philosophically, in the light of man's *complete* mental and moral experience, must have had illustration of the 'waxing and waning' of their own philosophies (for we all have our philosophies, good or bad, consciously or semi-consciously held), in the history of their own minds—reflective exaltation followed by intervals of

philosophical collapse, after which they found it difficult to rise again into the conceptions which fatigue made them let go out of their minds for a time. The history of these 'ups and downs' in one's private philosophical experience so far represents the history of mankind in their dealings with the philosophical problems. The work has to be done over and over again by the individual, after preceding results have been consigned to the very imperfect guardianship of language. Not so in the merely mechanical sciences, where one can build upon results already reached, without the discoverer, or the student of the discoveries, being obliged to re-think the whole from the beginning, in order consciously to comprehend its organic intellectual unity.

It is in this way too that the past history of man's attempts to think the universe philosophically has been really the history of a very few epoch-making minds, who have reached some insight into the real meaning of that life and world in which we find ourselves—an insight that is beyond the intellectual grasp of more than a few. The *monads* of Leibniz, conceived by him in their several gradations, may illustrate the different approximations of individual human minds to the Supreme Mind and Meaning. We have, at uncertain intervals, Parmenides, Plato, Aristotle, Plotinus, Augustine, Thomas of Aquino, Descartes, Spinoza, Locke, Leibniz, Berkeley, Hume, Kant, Hegel, followed by periods, each of thirty years or more perhaps, in which attempts are made to interpret and assimilate, or to controvert, the thought which *they* severally and successively originated, but with imperfect success,—by disciples and also by antagonists intellectually inferior to these masters. Then follows an interval either of sceptical despair, or of empirical eclecticism, or even of general indifference to every form of philosophical enterprise—until another genius arises to lead the way in a philosophy, unconsciously widened by preceding constructive and destructive endeavours, as well as by the ever accumulating experience gained in civilised life and in the empirical sciences. And so it has come about that man's philosophic outlook of the universe to-day is immensely in advance of that of Thales or Anaximander.

There is another way in which the Philosophical Development may be looked at. It is this :—Abstract speculations about the rational constitution of the universe, about matter and spirit, and about the capacity of a human understanding for comprehending what is present to it, are remote from the

experience of ordinary men, and thus seem to have no connexion with human interests and affairs. They are accordingly disregarded; for most persons do not even try to think consciously, far less to think out and solve, the problems to which the philosopher is awake. Men in this state of mind cannot see that such questions have any important influence upon human life. Nevertheless, their great (but chiefly unconscious) influence on mankind might be illustrated in the whole social, literary, political and above all in the religious history of mankind. A volume might be written in verification of the summary statement of Coleridge, that "all the epoch-making revolutions of the world,—the revolutions of religion, and with these the changes in the civil, social and domestic habits of the nations concerned,—have coincided with the rise and fall of metaphysical systems: so few are the minds that really govern society, and so incomparably more numerous are the indirect or unconscious consequences of things than their foreseen and direct effects". It was thus that Hume's *Treatise on Human Nature* fell "still-born from the press": while his *History of England* charmed the readers of the generation in which he lived. To-day his *History* is an anachronism, superseded by more scientific conceptions of historical research; but the philosophy of the *Treatise* and of the *Inquiry concerning Human Understanding* is diffused through the intellectual atmosphere of the age, and is the vital root of its agnostic speculation. Philosophy, in the form of abstract discussion, is passed by with indifference. It is recognised in its power only after it has, unconsciously to themselves, rightly or erroneously, transformed men's ordinary conceptions and beliefs about the world of the senses and the ultimate interpretation of their experience.

II.—THE GENESIS OF THE COGNITION OF PHYSICAL REALITY.

By G. F. STOUT.

§ 1. *Statement of the Problem.*—The world of physical fact is revealed to the individual mind in and through sense-perception. It is, throughout, a world of sensible things and processes, or of things and processes which can only be represented by the analogy of sense-given presentations. It comprises within it, as an integral part of itself, the content of all sense-perceptions. An error or illusion concerning physical fact is always found on analysis to consist in a wrong interpretation of what is directly presented in sense-experience, by which it is represented as having relations within the physical system inconsistent with the interconnexion of the parts of that system as a whole. It never consists in the presentation of a percept which finds no place whatever in the world of physical fact.

At the same time it belongs to the very essence of a physical fact that it should exist independently of its presentation to any individual consciousness. It may or may not come within the range of sense-perception. Whether it does so or not, makes no difference to it, but only to the percipient. The physical world, as it is represented by the individual to exist, is a world which only comes within the range of his sensible experience in a detached and fragmentary manner. He is compelled to represent the greater part of the total system of material things and processes as existing and happening apart from and independently of his perception, because he is compelled to represent them as existing and occurring in a connexion of time and circumstance in which they form no part of the content of his experience. In recognising the existence of a physical world, we recognise, as Mill says, that there are things "which exist when we are not thinking of them, which existed before we had ever thought of them, and would exist if we were annihilated; and further that there exist things which we never saw touched or otherwise perceived and things which never have been perceived by man". To this we must add, for the sake of completeness, that those fragmentary portions of the physical world which

are perceived by us are regarded as existing independently of our perception in just the same way as those which do not come within the range of it.

The problem with which I propose to deal is a purely psychological one. I propose to investigate the genesis of the presentation or representation of physical reality as above defined. All questions concerning the ultimate validity and import of the belief in such an "external world," I shall leave as far as possible untouched. My problem is simply this:—(1) Seeing that all we have cognisance of must, in the process of becoming known to us, come within the range of our private experience, how do we come to know, or believe that we know, sensible things and events which, as they appear to us to exist or occur, do not, in the time, place and circumstances of their existence or occurrence, fall within the sphere of our private experience? (2) How is it that sensible things or events, which, at the time when they exist or happen, actually come within the range of our private experience, are nevertheless presented as having existence in themselves independently of us and of our individual history? Let us, by way of preliminary, examine Mill's answer to these questions in his "Psychological Theory of the Belief in an External World".

§ 2. *Mill's Definition of Matter.*—"Matter may be defined—a Permanent Possibility of sensation." Does this definition really express the nature of the material world as it is presented to the individual consciousness? From our purely psychological standpoint this is the only question with which we need concern ourselves.

In the first place, let us examine more closely the precise meaning of the proposed definition. What are we to understand by "possibility," as the word is used by Mill. It has been most clearly pointed out by O'Hanlon that the term "possibility" in Mill's sense is precisely equivalent to the term "nothing". "A naked possibility is nothing," and Mill's possibilities are naked possibilities. The word *power* can only have an intelligible application when it "represents an incomplete assemblage of antecedent positive conditions, or perhaps a complete assemblage, but counteracted by some opposing circumstances". In this sense physical things are certainly possibilities of sensation, for they are positive conditions which suffice to produce sensation so soon as certain complementary conditions are fulfilled, *i.e.*, so soon as they enter into a certain relation with sentient organisms. This is a fact universally recognised by common sense as a

general characteristic of material things. But Mill did not and could not mean this when he defined matter as a "permanent possibility". Otherwise he would have committed a *circulus in definiendo* of the most inexcusable kind. His possibilities are, so long as they are not realised, nothing actual, *i.e.*, nothing at all. This is a view which may or may not be true; for our purpose it is sufficient to point out that it is diametrically opposed to the irresistible conviction of the ordinary mind. Mill's account of the material world may represent that world as it really is; but it certainly does not represent it as it normally appears to us. I think we have good reason for saying that it did not so appear even to Mill; for he speaks of changes taking place in the grouped possibilities and taking place in the same order of antecedence and consequence, "whether we are asleep or awake, present or absent". Now a change in a naked possibility is at the time when it is supposed to take place a change in nothing, and a change in nothing is no change at all. This could not be what Mill really meant, but only what he fancied himself to mean.

It may be urged with justice that this criticism applies rather to Mill's terminology than to the real import of his doctrine. The essence of his theory is that physical reality can be shown by analysis to consist in the fixity of the order in which actual sensations occur and in which possible sensations would occur if we actually experienced them. He himself identifies "permanent possibilities" with "guaranteed and certified possibilities," *i.e.*, with "conditional certainties". The "*conditions*" referred to must of course be themselves sensations. This view appears to me to involve a curious mixture of insight and of blindness. Fixity of order, unchangeable by our wish or will, is certainly involved in the conception of physical reality. But just as certainly this order is not identical with that in which actual sensations are presented and in which possible sensations would be presented. To know that my sensations come to me or would come to me in a certain order is to know a real fact, which, as known, does not depend for its existence on my knowing it. But it is a fact falling entirely within the sphere of my own sense-experience and having no meaning apart from its relation to my private history, actual or hypothetical. Even if I take into account the experience of other individuals, actual or hypothetical, the case is not essentially altered. The reference is still to mental, not to physical, reality.

Kant puts the same point in a different way when he

emphasises the difference between "objective judgments" and "judgments of perception". "The apprehension of the manifold in the phenomenal appearance of a house that stands before me is successive. The question then arises, whether the manifold of the house itself be successive, which of course no one would admit." Mill would, perhaps, say that reversible sequence is the same thing as coexistence. But Kant's whole point is that in this and similar cases the "reversible sequence" of sense-presentations is by no means identical with their coexistence. The reversible sequence of sense-presentations may imply a physical coexistence of the parts of the thing which we are exploring with eye or hand. But this only serves to exhibit in impressive contrast the distinction between the physical order and the actual or hypothetical order of sensations.

To sum up—Mill was wrong in his analysis of physical reality as it appears in ordinary experience. He saw that, as cognised, what is physically real is independent of our cognition of it; he saw that the order of our sensations, actual and hypothetical, possesses this kind of independence, remaining fixed quite apart from any remembrance, anticipation or desire on our part. He, therefore, maintained with reason that this order possessed all the characteristics of reality as distinguished from mere appearance. But he was wrong in assuming that it possessed the characteristics of physical reality. The grouping of sense-presentations, actual and hypothetical, is a grouping, not of physical facts, but of mental facts, as determined by the order of a certain set of physical processes, *i.e.*, the physiological conditions on which sensation depends.

§ 3. *Mechanism of Association inadequate for our purpose.*—

We have to inquire by what psychological processes the individual percipient is constrained to represent sensible things and events as actually existing and happening in a connexion of time and circumstance in which they fall outside the limits of his sense-experience. When the problem is stated thus, the inadequacy of Mill's attempted solution of it becomes evident. The psychological instrument on which he relied was the association of ideas. In order to account for the belief in an external world, we have, according to him, only to take account of the "associations naturally and even necessarily generated by the regular order of our sensations and of our reminiscences of sensation". Now, it seems to me that Mill's conditions are not merely insufficient. If they were per-

fectly fulfilled, they would not only fail to generate the belief in an external world, but they would preclude the possibility of such a belief. If complete uniformity prevailed in our sense-experience, so that it should be always possible to attain any given perception by first passing through a series of others in a fixed order, beginning with those which follow constantly upon volition, I fail to see how, under such conditions, the *ordo ad universum* could ever become detached in consciousness from the *ordo ad nos*. We should, no doubt, as we have seen, be aware of some kind of reality. But we should not be aware of it as reality in contradistinction from illusion; nor should we be aware of it as distinctly mental or distinctly physical; for the difference between the physical and the mental would for our consciousness be non-existent. Uniformity in the connexion of the contents of sense-perception, together with the laws of association, seem, when taken alone, rather to hinder than to help us. There is, therefore, only one course open to us. We must take into account the irregularity as well as the regularity of our sense-experience, and the conflict as well as the association of presentations. We must show how we are constrained to posit a world transcending and comprehending our individual experience by the necessity of interpreting, and so removing, incoherence within our individual experience. In order to enforce and explain this view, it may be convenient first to give a brief account of the process of constructive interpretation by which the conflict of presentations brings about its own removal. It will be, of course, impossible to go into detail. I shall only attempt to give an outline of the process as it may be supposed to take place in a typical instance of moderate complexity.

§ 4. *Process of Constructive Interpretation.*¹—It may happen, and constantly does happen, that psychological conditions come simultaneously into play which tend to bring contrary contents of consciousness into the same relation with the same content. By the law of association, a given distribution of attention tends to be renewed as a whole when it is renewed in part. In other words, a content which has once been presented in consciousness as a partial constituent of a complex tends to reinstate this complex whenever it is itself reinstated. But the same content may have been

¹ Dr. Theodore Lipps has in his *Grundthatsachen des Seelenlebens* given a very careful and able analysis of this process. I have in part followed him very closely.

presented in different contexts—*i.e.*, it may have been presented in the same relation to contrary elements, so that, when it recurs in consciousness, it will tend to reinstate these contrary elements as in the same relation to itself. If, now, the reproductive *nisus* which tends to revive one of this pair of contraries be a sufficiently strong one, and if that which tends to revive the other be approximately equal in strength, there is a pause in the flow of ideas, and the mental state called suspense or perplexity ensues. Similarly, the context of a presentation as supplied by preformed association may be in conflict with its context as given in sense-perception. In both cases the mind is compelled to stop and consider.

A most important source of conflict is to be found in those variations in our experience which *prima facie* appear to violate some law, mode or limit of variation with which we have become familiar. Supposing that on repeating the series 1, 2, 3, 4, 5, 6, I suddenly take a leap, and say 1, 2, 3, 4, 5, 6, 10, this violation of the rule of progression with which I started would awaken in anyone who happened to be attending at all closely a certain sense of discrepancy and a pause in the flow of his ideas. He would probably exclaim, 'Why do you say 10?' Now, the conflict in that case would lie not between the presentation of 6 and that of 10, but between the continuation of the series according to the law of the series and the actual continuation. Most trains of changes in sensible objects do not perhaps obey such definite laws as mathematical series. Nevertheless, there is for the most part a certain continuity in the variations to which they are subject. Conflict ensues whenever a transition is impressively presented which is strikingly sudden and abrupt as judged by the standard of our previous experience of the nature and limits of variation familiar to us in the subject of change.

Let us now examine the process by which the conflict of presentations brings about or tends to bring about its own removal. The first and chief point to be emphasised is that conflict operates in a manner exactly contrary to association. By the law of association the flow of ideas passes from *a* to *b* and from *b* to *c* in the order in which *a*, *b* and *c* have been previously attended to. Now it is the very nature of conflict to suspend this onward movement. In so far as a conflict of presentations arises, attention tends to move in conflicting directions, and the opposed tendencies neutralise each other more or less completely. When I speak of conflicting directions and opposed tendencies I

have a perfectly definite meaning. I mean that two presentations of contrary content tend to appear in consciousness in the same relation to an identical content, so that the different modes of mental activity counteract each other like physical forces having opposed directions and the same point of application. The forward flow of reproduction being in this manner obstructed, a peculiar redistribution of mental energy takes place, which cannot be accounted for on any principle of association. Like a stream which, meeting with obstruction, swells against its barriers and overflows its banks, the movement of attention, being suspended in its onward course, makes a way for itself in other directions. In the first moment of perplexity, attention is sometimes so diffused that no definite presentation emerges into consciousness. This state of general confusion tends also to recur at intervals during the process which precedes and introduces final cessation of conflict. But the general tendency of mental activity to become successively concentrated on the parts of a train of associated ideas soon reasserts itself. This ideal train cannot evolve itself from where conflict begins. The course of reproduction must, therefore, begin again from a new point of departure. Previous links in the train of associated ideas become revived, so that the movement of attention starts afresh from these and proceeds forward according to the laws of association. Now, if the result of this were that the same series *a, b, c*, always evolved itself anew in the same form to meet with the same obstacles so soon as it tended to pass beyond *c*, conflict might, *ceteris paribus*, persist for ever. But, except in a very primitive stage of mental development, this is not and cannot be the case. The flow of ideas in which *b* follows *a* and *c* follows *b* is not merely determined by the preformed associations between *a* and *b* and between *b* and *c*. It also depends on the total distribution of attention within the mental system. The redistribution caused by conflict must, therefore, largely modify the course of reproduction whenever it starts afresh from some backward link. When in this way a combination arises by which the conditions of conflict are removed, suspense ceases, and the flow of ideas proceeds without interruption. The modes in which this may take place are manifold, and I am not confident that they can be brought under one formula. Perhaps, however, the most general way of explaining an inconsistency is by making a distinction. In other words, *c*, instead of suggesting *x* and *y* as in the same relation to itself, comes to suggest them in

different relations to itself. The distinction which is to remove the conditions of conflict must not itself introduce conflicting differences. The general condition on which its efficiency depends is that the differences or variations involved shall be connected with the repetition of the homogeneous in space and the persistence of the identical in time. The same presented content x may, as referred to different parts of space, stand in what, except for this spatial difference, would be the same relation to the mutually contrary contents, p , q , r . Similarly, the same presented content x may, as the persistent subject of change in time, stand in what, but for this time-difference, would be the same relation to contrary contents p , q , r . The variations which accompany space- and time-differences must, however, be of a kind, and be restricted within limits, with which we are familiar. The transition in time from xp to xq may be a familiar experience, whereas that from xp to xs is entirely unfamiliar. A conflict of presentations will, therefore, ensue, when x appears first under the modification p , and then without intermediate transitions under the modification s . Conflict of this kind would be removed by an ideal combination interposing between xp and xs the transitions from xp to xq , from xq to xr , and from xr to xs , each of which is separately familiar, though they may never have occurred in this combination in sense-experience. Conflict would also cease if some familiar form of progressive variation suggested itself, leading continuously from xp to xs .

As experience advances in range and complexity, this constructive process becomes less mechanical. The general lines on which certain classes of problems admit of solution become more or less definitely known, so that the mind can confront them with prevision and purpose. It thus ceases to be blindly determined by the mere *vis à tergo* arising from the conflict of presentations. The most important advance in this direction depends on that voluntary control of the flow of ideas, in which the nature of language, considered as a mental activity, may be said to consist, and which is called in a distinctive sense thought or intellection.

It is necessary to add that, in early stages of mental development, theoretical problems arise for the most part in close connexion with practical needs. Incoherences in experience cannot produce perplexity unless they engross attention with sufficient strength and persistency. This depends on the interest which they excite, and such interest for the comparatively undeveloped consciousness is mainly

of a practical kind. Thus the solution of theoretical problems is at the outset almost entirely subsidiary to the devising of means to ends.

I have perhaps analysed a familiar process with too great tediousness and formality. My excuse is that I wish to claim for it definite recognition as a fundamental process, distinct from association, playing an essential part in all mental development and especially, as I hope to show more at length, in the development of the belief in an external world. I shall now examine the special steps or moments in the process through which this belief arises.

§ 5. *Antithesis of Mental Activity and Passivity.*—Mental life consists in the progressive redistribution of mental activity or energy. Following Dr. Ward, I shall call this activity or energy *attention*. For further definition of the word I refer to his article in the *Encyc. Brit.* (xx. 41). The mode in which attention is distributed at any moment depends in part on the mode in which it was distributed in the moment immediately preceding, in part on the action of the physical stimulants of sensation. So far as the transference of attention is determined from within it takes place gradually, and continuously, and in a certain fixed order. In each moment of our ordinary waking life, some definite presentation is focused in consciousness. Apart from the interference of external conditions, this dominant presentation owes its salience to the interest which it excites; and it excites interest in us mainly in so far as we have some apprehension of its meaning and import. Now this apprehension of the meaning and import of a presentation can only consist in some apprehension of its connexion with other presentations. Since these are, *ex hypothesi*, not given in distinct consciousness, it follows that they must be specially intensified in sub-consciousness. Adopting a term from Mr. Spencer, we may call this sub-excited group of mental elements "nascent" presentations. This term is applicable to them because they are nearer the threshold of distinct consciousness than other constituents of the mental system—*i.e.*, to use Dr. Ward's nomenclature, other portions of the *totum objectivum*. Thus, the focused presentation, together with the nascent cluster of sub-conscious elements connected with it, engrosses attention to such a degree as to exclude from distinct consciousness all objects save the dominant one. Now, apart from operation of extraneous conditions, the redistribution of attention normally takes place in such a manner that the focused presentation A gradually and

continuously disappears and gives place to a nascent presentation B. I say *gradually* and *continuously*, because it is impossible to determine where B begins and A ends.¹ Detail after detail of A disappears as detail after detail of B emerges, in such wise that those aspects of A which are most directly connected with B are the last to vanish, and those aspects of B which are most indirectly connected with A are the last to become discernible. As A gives place to B the character of the nascent group of sub-excited ideas gradually changes, so that certain elements acquire in it, on account of their connexion with-B, a relative intensity and efficacy which they did not possess, while A occupied the focus of consciousness. B then gives place to a nascent presentation C, C to D, and so on. Now, in all these changes, and in all the variations of them which we can trace, the transference of attention is orderly and continuous. It is transferred from A to E through the intermediate links *aB*, *bC*, *cD*, *dE*, where *a*, *b*, *c*, *d* stand for A, B, C and D respectively, when they have partially disappeared. If we take into account the operation of conflict, as described in § 4, the case is not essentially altered. Conflict does not interrupt the continuous transition from one distribution of attention to another, except in so far as it is a conflict between preformed associations and the content of sense-perception. Apart from this consideration, conflict is itself a phase of mental process arising out of and leading up to succeeding phases in a gradual and orderly manner.

But this orderly redistribution of mental activity, determined by interest and preformed associations, is perpetually modified and controlled by interfering conditions. The flow of ideas is always partially uniform and continuous, partially discontinuous and irregular. As I sit absorbed in study, I am rudely interrupted by the sounds from a barrel-organ in the street. In such a case the disturbance of the continuous flow of inward activity is violently impressive. But the antithesis is never wholly absent. Every phase of conscious existence is in its totality determined by the co-operation of internal and external conditions. Manifold physical excitations are perpetually affecting, and must perpetually affect, the senses. On the other hand, there can be no complete suspension of the flow of inward activity so long as there is any conscious life at all. As Dr. Ward says, the mind exists in being active.

¹ Taine, *On Intelligence*, bk. ii., c. 8.

Although this antithesis is always in some degree present in individual experience, it does not follow that it is always distinctly apprehended. In early stages of development it is blurred by the overpowering predominance of external over internal conditions. It becomes most marked when vehement desire or strong anticipation is suspended or thwarted, or when the attention is suddenly and forcibly diverted by obtrusive sensations from the direction prescribed to it by practical or theoretical interests.

In so far as the mind becomes in this manner definitely aware of the limitations and interruption of its own activity, it finds itself confronted by a problem, which it can solve only by reference to an activity other than its own. Change within consciousness is in part a continuation of previous change within consciousness, in part a disturbance interfering with this continuous process. This partial uniformity contrasted with partial absence of uniformity constitutes a fundamental and pervading incoherence within the sphere of individual experience, which can only be interpreted and so removed by positing an existence lying outside the sphere of the individual experience. Process within consciousness, in so far as it is not traceable to antecedent process within consciousness, must be traced to antecedent process, which, at the time when it is represented as taking place, *ex hypothesi*, did not form part of the content of consciousness.

This seems to me to be an indispensable moment in the development of the perception of physical reality. But it is only one step, although a most important one, towards the solution of the problem before us. The antithesis of mental activity and mental passivity, when it becomes sufficiently definite, enables and compels the individual to posit some agency separate from, and independent of, his own private experience. But the material world as presented to us is very much more than this. It is not merely a something which conditions individual experience from moment to moment. It is a system of definite phenomena, tangible, visible and audible. In order to account for its psychological genesis it is not enough to show how, and in what sense, we may and must become conscious of something as existing beyond consciousness. It is necessary to show how the contents of tactile, visual and other presentations in all their concrete variety come to be apprehended as existing independently of individual thought and perception.

Let us next consider how far it is possible to approach a solution of this problem by taking into account the experiences connected with motor activity as contrasted with what Dr. Bain calls "purely passive sensation".

§ 6. *Muscular Activity*.—"Any impression," says Dr. Bain, "that rouses muscular energy, and that varies with that energy, we call an outward impression. . . . The sum total of all the occasions for putting forth active energy, or for conceiving this as possible to be put forth, is our external world." This statement appears to me to be to a large extent true. I have to examine how and how far it is so.

I cannot agree with Dr. Bain in directly identifying consciousness of muscular activity with consciousness of physical reality. His teaching on this point seems to me to involve an obvious paradox, which he fails to explain or justify. He tells us in the most explicit manner that external existence is synonymous with the uniform dependence of our passive sensations upon our motor experiences. "Our belief in the externality of the causes of our sensations means that certain actions of ours will bring the sensations into play or modify them in a known manner." The context shows that Dr. Bain here means literally what he says, otherwise one might be tempted to suppose that he had written "externality" by mistake for "internality". I utterly fail to see how dependence on my own activity can mean the same as dependence on something other than myself. The series of motor presentations accompanying my bodily actions form a content of my personal experience which does not of itself include any reference to a reality separate from and independent of that experience. Dr. Bain maintains, with good reason, that if we "were subject to purely passive sensations—such sensations as warmth, odour, light—apart from any movement of any active member whatever, our recognition of the external world might be something very different to what we now experience". But it is equally true that if the nature and order of our passive sensations were throughout as entirely within our voluntary control as are the experiences immediately and constantly connected with the movement of our "active members," our recognition of the external world would be altogether different from what it is. There might conceivably have been so perfect a "uniformity of connexion between certain appearances and certain movements" that it would have been always possible to attain a certain experience by first passing through a series of others in a fixed order, beginning with those immediately sequent upon volition. Thus certain movements of the eye might have been uniformly followed by certain visual experiences, certain movements of the limbs by certain tactile experiences, and so forth. Under these conditions I

do not see how the order of physical facts could ever have become detached in consciousness from the order of personal history,—the 'objective judgment' from the 'judgment of perception'. The all-important point is the combination of partial uniformity with partial want of uniformity in the connexion of sensation and muscular activity. There thus arise incoherences in our experience which bring about their own removal by a process of constructive interpretation; and this constructive process plays a most important part in the development of the cognition of a material world.

The mode in which this takes place is in general as follows. Certain changes within the field of consciousness are uniformly attendant upon our own motor activity. Similar changes also take place of themselves apart from any action of ours. In order to make our experience self-consistent we are constrained to interpret the involuntary variations by the analogy of those which are initiated by ourselves. We are constrained to regard these variations as due to something not ourselves exercising a motor activity analogous to our own. The nature of this activity is represented differently according to the variety of cases in which we are driven to assume its presence. To enumerate and explain all these cases in their manifold diversity would be an endless task. I can only touch on a few important points by way of illustration.

Tactual and visual sensations change their local signs in a uniform manner with movements of the eye and of the limbs. They also sometimes change their local signs in a similar manner without any corresponding variation in the position of the sensitive surface. In this latter case we represent the variation as sequent on a motor process standing to it in the same relation as our own experience of muscular activity would have done if we had initiated it ourselves. This is made possible, or at any rate facilitated, by the experiences which accompany the mutual exploration of the various sensitive surfaces of our body by each other. The visual presentation of the hand changes its local sign as the eye is moved. It may also be made to change its local sign in the same way by a certain movement of the hand. We thus learn the equivalence of these two motor series as antecedents of this variation in the content of consciousness. Thus when a visual presentation changes its local sign apart from our initiative, we are easily led by analogy to refer the change to a motor activity equivalent to our own, just as in the case supposed the motor series

attendant on a certain movement of the hand is equivalent to that which accompanies a certain movement of the eye.

With the movement of the head or of the body as a whole in a certain direction the extensive magnitude of a visual image gradually increases or diminishes. Similar increase or diminution sometimes takes place without any such movement. We then interpret it by reference to a motor activity other than our own. Here, too, the process of interpretation is essentially facilitated by experience of what takes place within the limits of our own organism. The same increase in the visual magnitude of the hand accompanies both the act of lifting it up towards the eyes and that of bending the head towards it.

Such instances might be indefinitely multiplied. For our present purpose it is sufficient to refer to a group of cases of unique importance—those connected with the experiences which arise when, to use Dr. Ward's language, our movements are "definitely resisted or only possible through increased effort". The series of muscular and other sensations which accompany the movements of our limbs or of our body as a whole are very largely within our own control. But they are by no means entirely so; for though it nearly always lies within our power to begin to move in this or that direction, yet we cannot uniformly determine whether or not a movement in a given direction shall meet with obstruction giving rise to a sense of increased effort. Nor can we uniformly determine by what intensity of effort we shall be able to overcome such obstruction, or whether we shall be able to overcome it at all. This has been extremely well put by Thomas Brown. "The infant . . . repeats the volition which moves his arm fifty or one thousand times, and the same progress of feeling takes place during the muscular action. . . . At length he stretches out his arm again, and, instead of the accustomed progression, there arises, in the resistance of some object opposed to him, a feeling of a very different kind, which, if he persevere in his voluntary effort, increases gradually to severe pain, before he has half completed the usual progress. There is a difference, therefore, which we may without any absurdity suppose to astonish the little reasoner." I quite agree with Brown that there is no absurdity in this supposition. It would be a psychological absurdity to suppose anything else. The "little reasoner" needs not, however, remain in helpless astonishment. There is certainly an impressive incoherence in his experience. But in order to interpret and remove it, he has only to posit a something

other than himself as "making an effort, the counterpart of his own". He thus assimilates all cases of resisted effort to those of which he has constant and uniform experience when within the limits of his own organism the one limb resists the movement of another.

We saw in § 5 how the individual is constrained to posit some agency beyond the range of his own private experience. We have seen in the present section how the individual is led to represent this agency as exercising a multiplicity of special activities in the way of movement and resistance analogous to those which precede and accompany his own bodily actions. There thus arises a well-marked division between self and its modes on the one hand, and the not-self and its modes on the other. The not-self must, by the conditions of its psychological genesis, be presented from the outset as that which changes or remains unchanged independently of this or that mode of motor activity on the part of the percipient. Hence variations in the content of perception, if and so far as they are traced to the motor activity of the percipient, are presented as changes in the self, *i.e.*, in the body-complex,¹ not in the external object. In the midst of such variations this object may remain unchanged. For example, the increase or diminution in the extensive magnitude of the visual image, which takes place as we approach to or recede from the visible object, is regarded as a change in us rather than in it. Not the thing, but its appearance varies. Similarly, when through movements on our part we cease altogether to perceive an object, we are not on that account driven to represent it as no longer existing. This, however, is a point which requires separate discussion.

§ 8. *The connexion of Persistence with Resistance.*—Before proceeding to discuss the genesis of our belief in the persistence of sensible objects during the intervals of perception, we must investigate the mode in which objects are pre-

¹ By body-complex I mean the whole group of experiences due to the mutual exploration of the different parts of the organism, all motor and organic sensations, and finally, all desires, emotions and mental images, considered as vaguely localised within the body, and so sharing in a manner its changes of position. The body-complex, so understood, is identical with the self as presented to the relatively undeveloped consciousness. Perhaps it is the form in which the self normally appears to all save the philosophic and reflective consciousness. Wherever in this paper I use the word self, I use it in this sense.

sented as persisting at the time when they are actually perceived. In this connexion, the experience of definitely resisted effort is of fundamental importance. For in it objects are revealed as persisting independently of us and of our actions through an effort which is the counterpart of our own.

We have seen (§ 7 *ad fin.*) that, so far as certain modes of variation in the content of sense-perception are uniformly connected with certain modes of variation in the motor activity of the percipient, they are apprehended as changes in the body-complex, not as changes in any object distinct from the body-complex. We have seen that this necessarily follows from the very nature of the process by which the not-self comes to be presented. Thus the changing series of motor sensations which uniformly accompany the free movement of the limbs are not regarded as involving any other changes beyond those which are immediately experienced. It is otherwise with those modes of variation which require as their antecedent a sense of definitely resisted effort. For here there is implicated, besides the motor activity of the percipient, a correlative activity, which the percipient is constrained to represent as having formed, at the time and under the conditions of its occurrence, no part of the content of his experience. Any process, therefore, which involves this twofold activity cannot be wholly and exclusively connected with either of its factors. It may, however, be possible, and even necessary, for the conscious agent to distinguish within the total process certain aspects which are definitely traceable to the direction and degree of his own exertion, as contrasted with the corresponding action of the not-self, and *vice versa*.

On examination, it becomes evident that this is so. So far as resisted effort is followed by change in the content of sense-perception, we are constrained to refer the change, as such, to our own exertion; on the other hand, so far as the change is only partial, *i.e.*, so far as the resisting thing persists unchanged, we are constrained to interpret its persistence as uniformly connected with the kind and degree of the counter-effort, which we represent as distinct from our own. The experience of resistance is also an experience of persistence; it is, moreover, an experience of a persistence which must be represented by us as independent of us and of our actions.

Alterations in the form, position, texture, &c., of the resisting object, as presented to sight, touch or other senses, in so far as they are consequent on muscular exer-

tion, are uniformly introduced by definitely correspondent variations in the complex sensation of muscular tension. Since this is a change in the experience of resisted effort, it must be interpreted as involving a corresponding change in the not-self. Further, the same intensity of muscular tension may be followed on various occasions by varying degrees of change in the character of the resistance encountered, and in the tactile, visual and other sensations with which this is uniformly connected. Sometimes the same amount of effort, which, in one case, initiates a great change, is, in another, followed by no change that is appreciable. How is such want of uniformity and consequent incoherence in our experience to be interpreted and removed? It is easy to show that this is possible only by reference to the varying degrees of counter-effort on the part of the not-self. When change does take place, it is found that increased change follows increased effort, and that decreased change follows decreased effort on our part. Where no change takes place in sequence on a certain degree of exertion, it is often found to follow upon an increase of muscular tension. The general tenor of experience shows in like manner that, when by effort we overcome resistance, our action *quâ* ours is exclusively the antecedent of change *quâ* change in the resisting object. It follows that the partial or complete constancy of the resisting object, in spite of our efforts, must be represented as uniformly connected in a strictly analogous way with the counter-effort of the not-self. This is, of course, facilitated by the experience of double tension accompanying the mutual pull or pressure of our limbs. In such cases we find that each limb is maintained in its own position only by an effort equal to that which would otherwise be followed by its displacement. Similarly, when we resist moving forces exerted by things external to the organism, we find that, in general, the more effort we make the smaller is the change which ensues in our own position. These experiences admit of easy transference by analogy to the persistence, in spite of our efforts, of external things which obstruct our movements.

Thus we may fairly claim to have shown that all resistance is resistance to change, and that, in the normal course of human experience, the individual percipient is constrained to apprehend it as such. The same experience which reveals the object of perception as persisting partly or wholly unchanged in spite of our efforts reveals it as persisting independently of us through an effort, which is the counterpart of our own.

§ 9. *Unchanged Persistence in the Intervals of Perception.*—How is it that we are constrained to represent the object of a recurrent sense-perception as remaining in existence during the time in which we do not perceive it. To quote Dr. Ward, how are we “prompted to resolve the discontinuous presentation of external things into a continuity of existence”? Hume, who has investigated this question with extraordinary subtlety and insight, lays stress on (1) the “constancy” and (2) the “coherence” of the recurrent appearances which we regard as interrupted presentations of one uninterrupted existence. By “constancy,” he means invariableness in the nature and order of the parts of a complex percept on the several occasions of its recurrence. “My bed and table, my books and papers, present themselves in the same uniform manner, and change not upon account of any interruption in my seeing or perceiving them.” By “coherence,” he means a uniform mode of variation. “Constancy is not so perfect as not to admit of very considerable exceptions. Bodies often change their position and qualities. . . . But here ’tis observable that even in these changes they preserve a coherence, and have a regular dependence on each other. . . . When I return to my chamber after an hour’s absence, I find not my fire in the same situation in which I left it. But then I am accustom’d, in other instances, to see a like alteration produced in a like time, whether I am present or absent, near or remote. This coherence, therefore, in their changes is one of the characteristics of external objects, as well as their constancy.”

Following in the footsteps of Hume, I propose to consider separately those cases in which a percept is repeated without any impressive variation in the nature and connexion of its constituent parts. Dr. Ward points out that the mere fusion of a percept with the revived image of a previous percept would of itself lead only to intellectual identification without supplying any motive for “resolving two like things into the same thing”. This is, of course, true. But it must be borne in mind, that identification implies distinction, and that in the only class of cases which can be considered relevant, this distinction must have reference to a time-difference. The first and second presentations of A must be definitely and impressively connected by temporal signs with separate parts of the successive series which constitutes the changing experience of the individual percipient. They must, therefore, be represented either as transient events in this series, or as enduring apart from the series in

the interval which is interposed between their successive appearances within the series. We have to show how it is that the mind is compelled to adopt the latter alternative.

In the light of the foregoing sections, this is an easy task. We have seen in § 6 that change in the content of sense-perception, so far as it uniformly depends on the free movement of our own bodies, is not represented as change in the not-self. Now the movements by which we turn aside or recede from an object, so as no longer to perceive it, are, in general, of this kind. The same is true of the movements by which we close and open our eyes. We must, therefore, be predisposed to regard the disappearance and reappearance of the objects of perception as events not in their history, but in ours. Moreover, in § 8, we saw how, in the experience of resisted effort, bodies are revealed as persisting independently of us and of our actions through an effort which is the counterpart of our own. It follows, from these considerations, that it is inconsistent with the nature of external things, as they appear in actual sense-perception, to represent them as coming to be, and ceasing to be, concomitantly with their sensible appearances. Such a supposition would render our whole experience incoherent.

Finally, we must take into account a point on which Dr. Ward lays great emphasis, *i.e.*, the continuous presentation of our own body-complex. "As we have existed—or, more exactly, as the body has been continuously presented—during the interval between two encounters with some recognised body, so this is regarded as having continuously existed during its absence from us." It is evident that the persistence of our own bodies must immensely help us in representing to ourselves the persistence of other things. In order, however, to realise the full force of this consideration, we must remember that the not-self, as every step of our previous investigation clearly evinces, is constructed on the analogy of the self—*i.e.*, of the body-complex. It is, and must be, represented as another self, or rather as a plurality of other selves. Hence there arises a powerful predisposition to represent it as persisting in the same way as we persist.

§ 10. *Connexion of the perception of Space with that of physical Persistence.*—Professor James and Dr. Ward have lately shown, with great force and clearness, how the vague presentation of extensive magnitude, which forms a universal and inseparable constituent of all our tactile and visual

experiences, comes to be presented as a system of definite positions connected and separated by definite distances. It seems to me that they have succeeded in explaining by this method the perception of extension, but not the intuition of space as the form of external experience in the Kantian sense. Let us first consider the case of tactile perception. While we are exploring with the hand the surface of a body external to the organism, the same persistent system of local signs receives from moment to moment a varying content of tactile sensation, and tactile sensations, which we continue for a time to experience, keep changing their local sign. The parts of the external object are, therefore, originally presented as successive phases in a temporal series, the permanent subject of these continuous changes being the system of local signs. Now what is it that irresistibly constrains the mind to pass from the presentation of succession to that of coexistence and to apprehend the successive tactile presentations as parts of a spatial whole? It seems to me that the presentation of spatial coexistence here depends on that of physical persistence. We are compelled to represent resisting bodies as persisting independently of us and of our actions. When, therefore, we explore an external body with the hand, we are constrained to represent the successively presented parts of the tangible and resisting surface as continuing to exist when we cease to perceive them, in the same manner as they continued to exist when we perceived them. It follows that they must be represented as coexisting parts of a spatial continuum. Suppose the movement of exploration arrested for an instant. Suppose that at that instant A, B, C are contents of tactile perception presented in definite spatial relations to each other, so that B is interposed between A and C, and runs continuously into both. Now let the hand continue to move so that A gradually ceases to be perceived and D gradually comes within the field of touch. D is now presented as coexisting with B and C in the same spatial continuum, C being intermediate between B and D. But A, though unperceived, is still represented as persisting in its definite spatial relation to B and C; it is, therefore, represented as in definite spatial relation to D.

This seems to me to be the essential part of the solution of the proposed problem. But there are other complementary conditions to be taken into account. The most important of these is the uniform dependence of the sequence of percepts upon our own movements. So often as we pass the hand along the surface of the object in a given direction

we have a series of tactile experiences in a given order ; so often as we invert the movement we have the same series in the opposite order. Now we have seen that so far as change in the content of perception follows, and follows uniformly, upon definite modes of our own free motor activity, such change is referred to the self, and not to the not-self. There is, therefore, nothing to prompt us to interpret the succession in the presentation of the parts of the tangible object as implying that the parts thus successively apprehended are themselves successive. This is an important negative condition, which leaves us free to represent them as coexistent, but is not of itself a positive condition constraining us to represent them as coexistent. If it were, we should be forced to regard the reversible series of sounds produced by the movements of our organs of speech as coexistent instead of successive. The reason why this is not so, is that there is nothing in our direct experience of the sounds uttered which prompts us to represent them as persisting in the intervals of perception. They do not persist independently of us while we hear them. We are, therefore, in no way predisposed to regard them as persisting independently of us when we cease to hear them. I cannot agree with Dr. Bain and Mr. Herbert Spencer that the reversible sequence of percepts is the especial experience by which the relation of coexistence is disclosed. It is also essential for this that the percepts concerned be revealed to us while they are perceived as persisting independently of our actions through an effort which is the counterpart of our own.

What has been said with regard to successive exploration with the hand applies *mutatis mutandis* to successive exploration with the eye. Only in the latter case we must remember that the experience of visible extension is connected with the experience of physical resistance and persistence, only in so far as definite modes of visible extension are uniformly connected with definite modes of tangible extension. This seems to me to be the main reason why the visual perception of space must ultimately be referred to a "tactile base".¹

§ 11. *Change in the Intervals of Perception.*—The combination of partial constancy with partial alteration in the recurrent

¹ The above remarks on the connexion of the perception of space with the perception of physical reality seem to agree in their main drift with a note by the Editor on the subject in *MIND* xiii. 418.

objects of sense-perception gives rise to an incoherence in experience which prompts its own removal by a process of constructive interpretation. Constancy, in Hume's sense, is of itself a condition which disposes the mind to identify A as the same persistent object on the several occasions of its recurrence. Partial alteration, if it be in any way impressive, is of itself a condition which obstructs the process of identification. This must be so, because the effort to represent the same content of consciousness as standing in the same relation to different contents is an effort which defeats itself. Thus, if we repeatedly encounter an external body, constant in form, size and texture, &c., which resists our utmost efforts to change it in these respects, we are *ceteris paribus* impelled to recognise it as the same persistent thing, having uninterrupted existence between the times of its successive appearance. But if the constancy of texture, form, size, &c., is on some occasion combined with an altered position relatively to surrounding objects, conflict of presentations must ensue, and it must continue, except in so far as we are able to explain the difference by representing change as taking place in the intervals of perception analogous to, and continuous with, changes actually presented in our direct perceptual experience of resisting and persistent objects. The simplest possible case is that in which an alteration can be seen to be involved in the mere persistence of a certain mode of change, which, in an earlier stage, came directly within the range of sense-perception. By a persistent change I mean a change in which one phase continuously succeeds another according to uniform and recognisable rule, mode or limit of progression. Thus, a body moving constantly in a given direction persists in a certain definite mode of change. Now if a body so moving be at one moment perceived, at another disappears, and again reappears, in order to account for the difference in its position in its twofold appearance, we have only to represent the movement as persisting during the interval in which it was not perceived.

Apart from the need for accounting for the difference in position, we are predisposed to assume the uninterrupted continuance of a movement when we cease to perceive it, because the same experience of resisted effort which reveals to us the independent persistence of external things in like manner reveals the independent persistence of change in external things. All that has been said in § 8 applies *mutatis mutandis*, whether we suppose the initial state of the resisting object to be one of rest or of movement. Variation

in the velocity or direction of movement of the resisting body is as such uniformly dependent on the mode and degree of our effort; conversely, the degree in which the velocity or direction of the movement persists unchanged, in spite of a given amount of effort on our part, is uniformly connected with the degree of counter-effort which we ascribe to the not-self. Thus, the same condition which leads us to regard external things as retaining independently of us their form, texture, &c., leads us also to regard them as in like manner independent of us in respect to their local movements and other modes of variation uniformly connected with local movement.

Further complications are introduced when, in order to account for altered position, we have to represent a body not merely as continuing in a uniform mode of movement, but as having its course modified by obstacles. For the mental construction required in such cases, we have abundant material in our own experience of resisted effort transferred by analogy to the mutual resistance of external bodies.

Where the altered position cannot be traced to a movement which in some earlier stage has actually been presented, the object must be represented as beginning to move in the interval between its successive appearances. The commencement of the movement may be represented either on the analogy of our own bodily actions, which have their antecedent in voluntary activity, or it may be referred to the impact of some other body, acting as we do when we move external things. In both cases we interpret the change as in some manner a continuation of previous process according to a more or less definite law of progression. The history of physical science shows how the latter mode of interpretation has gradually supplanted and superseded the former, so that at the present day there seems to be no room for any view of nature save the mechanical one, which is extended so as to apply even to the actions of animated organisms. In early stages of development, on the contrary, not only the movements of animated organisms, but also the movements of bodies which we now regard as inanimate, were traced to the voluntary or quasi-voluntary initiation of personal or quasi-personal agents.

It would be both tedious and useless to go into further detail on this subject. The essential point is that through such constructive processes there grows up within the individual mind the representation of a system of definite

things and processes, existing independently of its fragmentary and discontinuous appearances in the sensible experience of any individual percipient or of all taken collectively.

§ 12. *Conclusion.*—I hope that now my main position is clear. The physical world as presented to us is a fixed system of related elements. It includes within it the content of all our sense-perceptions; it also includes within it much which, in the connexion of time, place and circumstance to which it is referred, lies outside the sphere of our individual experience. It is, moreover, a system which exists for us independently of our wish and will, and to a great extent contrary to our wish and will. We have been concerned with the question: By what process does such a system come to be presented to the individual consciousness? The plain man refers us for an answer to our senses. Agreeing with the plain man on this point, we inquire further, by what process sense-perception gives rise to the belief in an external world. The answer, so far as we have been able to discover, is, in broad outline, as follows:—Partial uniformity combined with partial want of uniformity in the connexion of the contents of sense-perception gives rise to incoherence in our experience, which causes conflict of presentations. This conflict constrains us to make our experience consistent by a constructive process. In this constructive process we are compelled to connect sense-given presentations with each other by means of ideal combinations. In this manner we are constrained to represent things and processes as existing and happening in a connexion of time, place and circumstance in which they fall outside the limits of our individual experience. The coherent system which thus comes to be presented has all the characteristics of physical reality. Our point of contact with it is in sense-perception. It comprises within it the content of all sense-perceptions. Every special connexion of elements within it forces itself upon us with a strength derived from its being an integral part of the whole fabric of related elements. Hence the stubbornness of facts is in great part to be accounted for. Of this total system it is only a small fragment with which we as individuals are brought into direct contact, and even this fragment, inasmuch as it is an integral part of the whole, shares the independence and self-existence of the whole.

III.—DOUBLE CONSCIOUSNESS IN HEALTH.

By ALFRED BINET.

I.

I HAVE published lately, in different serials,¹ the result of my researches on a question, of great interest for psychology, which I have studied on hysterical 'subjects'. This question is that of the duplication of consciousness. It has seemed to me useful to try if I could obtain analogous results in 'subjects' that are normal—or nearly so, for, of course, the normal type has only an ideal existence. It is certain that, if we succeed in seizing in a healthy individual the least degree of the phenomena of duplication which are so developed in the hysterical, a solid basis will be given to the psychological study of double consciousness; each observer being put in a position to check all the facts advanced. I have made my investigations on five persons, who have been kind enough to submit themselves patiently to very long, very minute and very monotonous experiments. Before setting forth the results obtained, I will give a summary of the experiments I first made on hysterical 'subjects'.

These experiments bear on the movements that can be provoked in the insensible limb of a hysterical 'subject' without the 'subject's' knowledge. If, at the risk of making hypotheses, I offer, in brief outline, a theory of these phenomena, I shall be clearer than if I began with a summary of the facts. In my opinion, things pass in the anæsthetic hysterical 'subject' as if there existed a particular group of states of consciousness in special relation with the insensible regions of the body. This particular mental synthesis is quite distinct from the general synthesis that forms the personality of the subject; it forms as it were a smaller personality beside the greater, which is ignorant of it,—a second Ego beside the first. This smaller personality in the first place receives tactile, muscular and other

¹ "Recherches sur la Physiologie des Mouvements chez les Hystériques," en collaboration avec M. Féré, *Archives de Physiologie*, Oct., 1887; "Recherches sur les Altérations de la Conscience chez les Hystériques," *Revue Philosophique*, Février, 1889; "Note sur l'Anesthésie hystérique," *Comptes Rendus de l'Académie des Sciences*, Janv., 1889; also in the *Bulletins de la Société de Biologie*, and in *The Open Court* (*passim*).

impressions, painless and painful, proceeding from the insensible regions; it can apprehend these impressions, and execute in consequence adaptive movements; it can likewise respond by adaptive movements to ideas belonging to the first or main personality, and thus serve for the involuntary expression of these ideas; finally, it can in its turn excite ideas in the field of the main personality. In all these circumstances, so different among themselves, the smaller synthesis remains distinct and independent, and the principal Ego of the 'subject' in no wise has consciousness of it. There is a double consciousness, or, if we prefer to put it in that way, a coexistence of two conscious thoughts that are ignorant of each other.¹

I will now summarise the facts that form the support of the theory that has just been indicated. These facts have all been observed under the same conditions, namely:—the 'subject' of the experiment was always a hysterical patient, presenting complete insensibility in some part of the body, for example, the arm or the hand; and further, the insensible part was withdrawn from sight by the interposition of a screen, in such a manner that, during the experiment, the 'subject' was aware of neither the sensations nor the movements. When a hysterical 'subject' presents such insensibility, it is observed in many cases—not in all—that the reflex actions and movements provoked in the insensible limb are exaggerated in comparison with those in the limbs that retain their sensibility. If a known object, such as a pair of scissors or a pencil, is placed between the fingers of the insensible hand, the fingers and the hand perform an act of adaptation in relation with the nature of the object; for example, if the pencil has been placed between the thumb and the index finger, these two fingers approach the pencil, the others bend, and the hand assumes the attitude necessary for writing. If we fix the insensible limb in any position, sustaining it a little, it happens not rarely that the limb keeps this position, and sometimes for a very long time, without the 'subject's' feeling fatigue, and further, the limb does not sink when charged with light weights. If a passive movement be communicated to the limb, it may repeat it, even when it is a very delicate and complex movement,—a graphic movement, for example; and the repetition of the written word

¹ Without giving the history of this question, I may remind the reader that it has been studied in France by M. Pierre Janet, and in England by Gurney and Mr. F. W. H. Myers.

may even take place with signs of intelligence : thus when, by guiding the insensible hand, we have made the 'subject' write a word, it sometimes happens that the hand corrects an error in spelling, or finishes the word of which we have traced only the first letters. If letters and any kind of signs be traced on the insensible skin, while the hand holds a pencil, the hand may reproduce all these signs which the 'subject' does not perceive. If the 'subject' be made to listen attentively to the sound of a metronome while the insensible hand holds the pencil, we see the pencil follow the rhythm of the metronome; but this registering of the rhythm ceases or becomes much less marked when the 'subject' is requested not to listen to the sound of the instrument. When the insensible hand is made to undergo a very strong excitation, it may come to pass that the hand makes movements of defence, as if a pain was felt, although the 'subject' experiences nothing; for example, if the fingers of this hand be made to hold a lighted match, we sometimes see the fingers recoil and fly from the flame. When the 'subject' thinks intently of something, for example, of a figure, and when the insensible hand holds a pencil, the pencil traces the figure, and thus occasionally reveals to us the intimate thought of the 'subject,' without his knowledge; inversely, it may often happen that if we produce a determinate number of excitations on the insensible hand, for example, by pricking it or moving one of its fingers to and fro, and at the same time request the 'subject' to think of a number, the number he voluntarily, and in appearance freely, chooses is that of the unfelt excitations. Finally,—the last, perhaps the most interesting, and without doubt the rarest, observation,—it happens sometimes that, when the insensible hand holds a pencil, it begins spontaneously to write connected sentences, without the 'subject's' being able to account for it.

These are the principal facts which I have had occasion to observe in researches lasting through several years. They give evidence, as I have said, of the existence in the hysterical 'subject' of two centres of activity, which may remain absolutely distinct. Many experimental details, notably the last observation which we have just summarised, prove that these two activities may be conscious, and that consequently there may be in hysterical 'subjects' two simultaneous and distinct consciousnesses.

Is it the same in non-hysterical 'subjects'? That is the question which the present paper will try to answer.

II.

The persons on whom I have experimented are two ladies of fifty, a lady of thirty and two of twenty-five years of age. One lady of fifty is ataxical; the lady of thirty is decidedly anæmic; otherwise, all of them enjoy good health. They have little intellectual culture, are completely ignorant of the aim of the experiments, and know, of course, nothing of researches on double consciousness or the like. I sat with each of them, on an average, six times, for three-quarters of an hour. The phenomena became gradually more marked, and without doubt would become still more so if the treatment were pushed farther. Lately, I have attended to the question whether suggestible persons present a narrowing of the field of consciousness, that is to say, a difficulty in occupying themselves with several things at a time.¹ I think I may answer that it is not so with those of my 'subjects' who present the most developed automatic phenomena; in fact, they can do at the same time very complicated things, for example, perform a mental addition, and squeeze, in series of five or six pressures, an indiarubber tube connected with a registering apparatus. I shall return to this question later on.

A word, first of all, on the experimental conditions selected. When experiments are made on a hysterical 'subject' with an insensitive limb, it is relatively easy to submit that limb to excitations of which the 'subject' has no consciousness. If, for example, it is the arm of the subject that is insensible, this is placed behind a screen, the skin is excited without the 'subject's' perceiving the excitation, and the movements—often very intelligent—which the hand and the forearm execute in response to that excitation are produced outside the consciousness of the 'subject,' and prove consequently that there exists in the 'subject' a second consciousness.

But when the 'subject' of the experiments has not the least insensibility, it is necessary to change the method. If his hand, placed behind the screen, is touched, he feels that it is touched, and the movement by which he responds to this sensation is equally conscious; there is no double consciousness there. To evoke double consciousness, it is therefore necessary to render the 'subject' insensible to the excitations brought to bear upon his limb, and, for that

¹ Pierre Janet, *L'Automatisme psychologique*, p. 456.

purpose, to distract him by occupying him otherwise ; distraction, as M. Pierre Janet has well shown, being a transitory anæsthesia.

I therefore requested my subjects—to whom, of course, no explanation was given of what was going to be done—to seat themselves before a table and leave their right hands to me, while I gave them something interesting to read. In these conditions one fact first showed itself which is worthy of remark. If the hand of one of my ‘subjects’ was pricked while she was reading attentively, the sensation was less well perceived than when the ‘subject,’ without looking at her hand, was told that she was going to be pricked and was prepared to receive the sensation ; for example, the separation necessary for the two points of a compass to be felt as double was greater in the first case. This, then, is anæsthesia by distraction ; it is fugitive, passing, deceptive,—but it exists.

I could render it stronger by means of an artifice. Provoking different movements in the limb experimented on, I requested the ‘subject’ to execute no movement, to leave her hand, for example, completely motionless and relaxed, and at the same time made her believe that it was I who, by slight pushes on the pencil or on the hand, made the latter move. Thanks to this little deception, the subject would pay no attention to those slight movements of her hand, but attribute them to the experimenter. Evidently these (very delicate) psychological conditions will vary from one ‘subject’ to another ; but for the moment we need take no account of the variations.

III.

One of the experiments it appeared to me easiest to effect was that of the repetition of passive movements. A pencil being placed in the hand of the ‘subject,’ who was attentively reading a journal, I made the hand trace a uniform movement, choosing that which it executes with most facility, for example, shadings or curls or little dots. Having communicated these movements for some minutes, I left the hand to itself quite gently ; the hand continued the movement a little. After three or four experiments the repetition of the movement became more perfect, and, with Mlle. G—, for example, at the fourth sitting the repetition was so distinct that the hand traced as many as 80 curls without stopping.

It is for the experimenter to choose with each ‘subject’ the easiest kind of movement. I find that in general those

movements are easiest that can be executed with a continuous stroke.

In the first experiments, when the hand had been successfully habituated to repeating a certain kind of movement—for example, curls—it was to this kind of movement that it had a tendency to return. If it was made to trace the figure 1 a hundred times and was afterwards left to itself, the stroke of the figure became rapidly modified, and turned into a curl. This shows well how rudimentary, as yet, was the motor memory that was being developed.

When any kind of movement had been well repeated, it could be reproduced without solicitation every time a pen was put in the 'subject's' hand and she fixed her attention on reading. But if the 'subject' thought attentively of her hand, the movement stopped.

I have selected graphic movements because they are sufficiently delicate to be produced without awakening the attention of the 'subject,' whereas movements of flexion and extension impressed upon the fingers or the wrist would with difficulty pass unperceived at the beginning of the experiments.

Movements of flexion and extension can nevertheless be developed, and I have ascertained that it is easier to get a total movement of the wrist repeated automatically than an isolated movement of flexion of one of the fingers.

When these movements of repetition become very distinct, they may come to be generalised and to appear in the other limb.

A second observation relates to the influence which the contact of the experimenter exercises on the hand experimented on. With a slight pressure I was able to make the hand go obediently in all directions, carrying the pen with it. This is not a simple mechanical compulsion, for a very feeble and very short contact is sufficient to bring on a very long movement of the hand. The phenomenon, I believe, can be approximated to a rudimentary suggestion by the sense of touch. Nothing is more curious than to see the hand of a person who is awake and thinks she is in full possession of herself implicitly obey the experimenter's orders. In these conditions there appears to me to be a partial hypnotisation.

It sometimes happens that the 'subject' perceives these movements; but the perception is much less distinct than in the normal state. You can assure yourself of this by requesting the 'subject' to describe exactly the movement she has been made to execute.

IV.

The necessary condition for the preceding reactions is that attention should not be fixed on the hand and what is taking place there. So far, I have realised this condition by making the 'subject' attend to something else, *viz.*, reading, which is an intellectual operation having nothing in common with the excitations that produce manual movements. Thanks to this artifice, the excitations,—for example, the contact of the experimenter or the passive movement impressed,—produced their full and entire effect on the psycho-motor centres of the arm, without the attention and will of the 'subject' interfering to modify the reactions.

Curiously, this result can be attained by quite opposite means. Instead of the attention of the 'subject' being attracted elsewhere, it may be fixed on the particular excitations that are to set going the psycho-motor mechanism of the hand.

The following is the clearest example that I have been able to establish. Place a metronome before the 'subject' and set it in motion. Let the 'subject' be requested to listen with the greatest attention to the hard sharp sound of the metronome, while the hand holds a pen. Pretty rapidly you can habituate the hand of the 'subject' to trace with the pen little strokes that follow the rhythm of the metronome. Some persons even attain to doing it spontaneously.

In this experiment it is sufficient for the 'subject' to listen with attention to the sound in order to cease to perceive the movements produced in the hand by the acoustic excitation. The excitation and the movement are nevertheless cause and effect. They are two elements of the same psycho-motor process; and *a priori* it might have been thought that the attention fixed on one of these elements should naturally extend to those associated with it.

Excitation of the movements of the hand may be produced not only by external sensations, but by ideas that strongly occupy the mind of the 'subject'. If the 'subject' thinks forcibly of a name or of a figure while holding a pen in the hand, and if the experimenter himself holds the hand of the 'subject,' it happens pretty often that the hand executes movements distinct enough for the experimenter to be able to divine his 'subject's' thought. This is the phenomenon of automatic writing, which has been studied at length within the last years. I have nothing new to add, unless it be the remark that concentration of thought on a figure is sufficient to produce a state of distraction from the movements of the hand that is writing the figure.

The experiment with the metronome gives occasion for a remark as to the effect of attention on the intensity of sensations. As long as the subject listens to the beats of the metronome, the rhythmical movements of the hand go on. They become much feebler and may even cease completely if the subject is requested not to listen any longer, but to think of something else. This observation I had made on hysterical 'subjects,' and in much better conditions; for the rhythmic movements of the hysterical 'subject's' insensible limb are so considerable that they translate themselves, when the 'subject' holds an indiarubber tube, into pressures on the tube. I have therefore been able to register these movements by the graphic method; and the tracings obtained show that there is a great difference in the extent of the contractions, according as the 'subject' listens with attention to the sound of the metronome or tries not to hear it.

This experiment on the hysterical, taken along with that which has just been described on healthy subjects, proves, in my opinion, that there is in us a power of augmenting the intensity of an excitation whenever we attend to it. Attention is comparable to will; it is, in fact, nothing else than will directed towards the organs of the senses and the processes of ideation. Just as by the will we can stop a movement or augment its energy, so by attention we can weaken or augment the effect of a peripheral excitation. I reserve the study of attention for another time.

V.

My aim here was simply to show that the rudiment of those states of double consciousness which I have studied first in the hysterical, may with a little attention be found in normal 'subjects'. This result might have been inferred from the numerous observations on automatic writing which have been made on 'subjects' free from hysteria. Automatic writing is the best known of these facts of double consciousness; but we have seen that it is not isolated. It is only one in a large class of phenomena, others being the repetition of communicated movements, suggestion by contact, insensibility by distraction, &c. All these phenomena, when brought together, throw light on one another and attest the formation of a centre of consciousness functioning independently of the common centre. My experiments appear to me to demonstrate that many normal 'subjects,' if not all, are apt to have their psycho-motor centres thus disaggregated.

Of course my experiments were not complicated enough to prove that the psycho-motor centres of the hand and arm, which I have caused to act independently, are accompanied by states of consciousness. I have therefore not succeeded in demonstrating double consciousness in healthy as in hysterical 'subjects'. I have only established the existence of the first degree of the phenomenon.

Of the five 'subjects' specially studied, I have only found one—a lady of fifty—who, in spite of repeated experiments, displayed neither automatic writing, nor suggestion of the hand by contact, nor automatic repetition of movements. The only fact observed with this lady is that, when she reads while holding a pen in the position necessary for writing, her right hand insensibly traces with the pen a straight line from left to right. I must add that she declares herself almost incapable of attentively following her reading while experiments are being made on her hand; her attention, in spite of every effort, goes with curiosity to her hand and spies out all that is taking place there.

The four other persons who submitted themselves to my researches displayed the phenomena of double consciousness. In two these phenomena were rudimentary; in the two others they were very developed. According to their own evidence, these four 'subjects' can fix their attention on their reading with sufficient force not to feel anything that is taking place in their hand.

It seemed to me then that attention was an important condition of the success of my researches. Accordingly, I made the following experiment on my two best 'subjects'.

I studied first the repetition of passive movements whilst reading was occupying their attention otherwise. The repetition was very distinct and developed. It might continue more than a minute without the knowledge of the 'subject'. If, for example, the pencil held in the hand had been made to trace a series of curls, the hand went on of itself to trace as many as a hundred more.

I now requested the 'subject' to leave off her reading, to close her eyes, and to think with all possible attention of what was taking place in her hand. In these new conditions the repetition of passive movements appeared to diminish. When I asked the 'subject' to look attentively at her hand while it was being made to trace curls, the movement stopped before it had well begun. The stoppage was here caused by the attention of the 'subject,' by her will; in short, by all the elements of her personality.

This is not all. I requested the same 'subject' to resume

her reading, and began again to impress movements on her hand. Under the influence of this mental distraction, the repetition of the movement reappeared; but it was much less distinct than before. The experiments had somehow instructed the 'subject,' and it is probable that, in spite of the attention she gave to her reading, she watched her hand and prevented the movements from taking place.

At this point I thought of an experiment which has thrown light on the very delicate mechanism of these psycho-motor reactions. Instead of occupying the 'subject' with easy reading, I put before her a long addition-sum, and required her to do it without the smallest mistake. What I had foreseen happened; repetition of the movements communicated to the hand began again, with a distinctness and a persistency which it did not possess during the reading.

This experiment gave me the key to the problem I was trying to solve. I think I may sum up my last result thus: the state of voluntary distraction produced in the 'subject' by the more exacting operation of addition prevents the consciousness, the attention and the will from inhibiting the movements of the hand.

A conclusion like this will perhaps, for a superficial reader, have the appearance of a truism, and I should be very glad if it appeared absolutely commonplace. But, when examined with care, the facts are seen to be very curious and significant. The experiments just described consist essentially in evoking two psycho-physiological processes which have nothing in common, such as reading on one side and repetition of a manual movement on the other. In the persons experimented on, the second of these processes was accomplished better when accompanied by the first. The automatic movements of the hand were only distinct when the 'subject' was at the same time reading or adding up figures.

This is not like our common experience. In most cases the mind cannot do two different pieces of work at once without one of them suffering, and sometimes both. I have been able to establish this as it were *de visu* in experiments I have been following out for some time on the conflict of states of consciousness. The procedure I have employed—which I shall describe at greater length elsewhere—consists in making a person squeeze an india-rubber tube rhythmically, while reading, or adding up mentally, or the like. The indiarubber tube is connected with a registering apparatus, and the pressures of the hand translate themselves into a tracing of which the slightest

irregularities can be detected. Now this tracing is frequently irregular in the parts that coincide with the reading or addition; and the irregularities are the more marked the more difficult and complicated the mental labour which the 'subject' is asked to perform.

This result, compared with that which I obtained in my experiments on automatic movements, is soon shown to be its inverse, and apparently its contradictory. The more the 'subject' is distracted (by reading, mental calculation, &c.) the more irregular become the *voluntary* movements of the hand transmitted to the india-rubber tube; and, if the distraction is very intense, these movements may cease completely. On the contrary, the more distracted the 'subject' is, the more regular and considerable become the *automatic* movements of the hand. The contrast is quite striking.

I am in no haste to generalise these results. I only state what took place in my 'subjects'.

The explanation of the difference observed between the conditions of voluntary movement and those of automatic movement, however, appears to me a comparatively easy matter. When a person is asked to do two things at a time—to read a book, for example, and to execute some manual task—two motor impulses are evoked which start from the same personality, from the same focus of consciousness. For it is the same person that is charged to do the two things at once,—to divide his attention and will between the two things. This coexistence of the two operations must evidently make each separately less perfect. The more attention each exacts because of its complexity, the more both will have to suffer from being carried on together.

On the contrary, when an automatic action is evoked in one of the limbs by a stratagem—when the hand is forced, for example, to execute certain movements without consciousness—it is not the conscious personality of the 'subject' that is appealed to. His conscious personality would only interfere in the experiment to inhibit the movement. This inhibition we avoid by turning away his attention; and, if there is no inhibition when the person is distracted, it is for the same reason that makes him unable to voluntarily squeeze the tube with regularity when he is distracted.

Schematising these complex relations of states of consciousness, I arrive at the following result. In the case where a person performs at once a mental addition and a muscular act, let the first operation be called *a* and the

second *b*. Observation shows that each of them is prejudicial to the other, tends to inhibit it. Let the automatic activity of the hand be called *c*. There is in each 'subject' a power to perceive this activity and to suppress it by holding the hand motionless. Let this operation be called *b*. The operation *b* then can inhibit *c*. But occupation of the 'subject' with reading, by provoking the operation *a*, prevents him from inhibiting the movements of his hand; that is to say, *a* is permitted to inhibit *b*, and this prevents *b* from inhibiting *c*. There is here, to use a happy expression of M. Brown-Séquard, *inhibition of a cause of inhibition*.

I wait for a future opportunity of following up this interesting line of study. If I make known my first results, it is because they bear on almost normal 'subjects,' and because, consequently, every one can, with a little attention and patience, check all that I advance. Perhaps the results will be different for different persons.

However that may be, the observations I have just related may contribute to show the rather embarrassing complexity of those inhibitory actions which psychologists have only begun to study within the last years.

IV.—ON SOME CURRENT CONCEPTIONS OF THE TERM 'SELF'.

By Professor JOHN DEWEY.

I.

IT is the aim of this paper to analyse certain conceptions involved in the terms Self and Self-consciousness as currently used. No attempt will be made to judge of the value of the ideas themselves. Indeed, there is such confusion in the use of the conceptions that an independent analysis of them would seem to be a necessary preliminary to any decision upon their validity. Whether or not philosophy is exhausted in the clearing-up of conceptions, it is certain that without an occasional clearing-up philosophy will get so entangled in the *impedimenta* of its own notions as to be hindered in its onward march. Unless this analysis is confined to ideas having or claiming to have some community of meaning, it will include ideas wholly incomparable with one another, and thus end in a mere account of the way in which various writers use the same word. A study of the terminology of philosophy is, no doubt, helpful; but, as that is not intended in this paper, I shall confine my analysis to the conception of the 'transcendental self'—to the idea of self which has affiliations with the movement set going by Kant, however divergent its various developments.

For a starting-point, and to a certain extent for a basis, Prof. Seth's recent work, *Hegelianism and Personality*, presents itself as convenient, occupied, as it so largely is, with just this notion of the self. In that work, three separate conceptions—used, however, interchangeably—may be discriminated. In the first place, we have it laid down that "the self *is* the world, and the world is the self. The self and the world are only two sides of the same reality: they are the same intelligible world looked at from two opposite points of view. . . . The mind and the world, subject and object, are convertible terms; we may talk indifferently of the one or the other: the content of our notion remains the same in both cases" (pp. 19-20). This result is based upon an examination of Kant's transcendental inquiry and method which is, so far as quoted above, accepted, to all appearances, by Prof. Seth. The

meaning of this view of the self may stand out more plainly if we call attention to another feature of it. This is that the "ultimate fact of knowledge is neither pure subject nor pure object" (p. 13). These are both abstractions: to separate them, to make independent existences of them, is to "substantiate abstractions". In truth, the self is a synthetic unity. "It binds together, as related members of one whole, what would otherwise fall apart as unrelated particulars; and, moreover, it is only through this synthesis that the unity of the Self or Ego exists. It is the unity of the synthesis, and, apart from its synthetic activity, would no more be real than the particulars of sense would be real without its action." It cannot be identified, in other words, with the mere act of uniting: it includes within itself what is united, just as, on the other hand, what is united has no existence outside of its being united. Because this is so—because, as Prof. Seth expresses it (p. 19), "the form is the form of the matter, and the matter is, as it were, simply the exhibition of the form"—the self and the world are correlative, and have the same content.

This, then, is the first notion conveyed by the term self—the self is the correlative of the intelligible world. Its content is that of the intelligible world. It even *is* the intelligible world in one of its aspects. And since Prof. Seth has expounded with great force the notion that the intelligible world is the only real world, that the unknowable to intelligence is "nonsense" (*Scottish Philosophy*, p. 162), we may say that, according to this notion, the self is one with the real world, when this is considered in its ultimate unity. This view is clear and self-consistent; with its truth we have nothing to do. But we find that the question as to the nature of the transcendental self has not been sufficiently answered. The question is again raised: What is the transcendental self? (top of p. 22). And the question is answered in a way which seems to me the exact opposite of the answer just given. It now turns out that the transcendental Ego represents *merely* the *formal* unity of the universe (p. 27). Although the self was shown to be a single self, its singularity is simply that which belongs to every abstract notion—a logical identity of type (p. 29). It is the "notion of knowledge in general" (p. 30). And, finally, Kant's characterisations of it are quoted. It is "a merely logical qualitative unity of self-consciousness in thought generally". It is a "logical exposition of thought in general" (p. 35). It is, finally, the "mere form of self-consciousness in general" (p. 230).

I confess that, to me, this second position, that the self is merely the formal unity of thought, appears to be the contrary of the first position taken by Prof. Seth. There the self was not formal; the form was an abstraction apart from matter. Kant was then rebuked for making the self formal. The necessity of correlating matter and form was the fundamental feature of the transcendental method. So far was the self from being merely formal that it was the world. Instead of being merely logical, the self was the unified universe; it was a synthetic unity which had no existence apart from the particulars unified in the synthesis. But in this second and revised view, Kant is praised for his superior consistency in holding that the self arrived at by his investigation is an abstract condition and not a metaphysical reality or concrete fact (p. 28). The subject which "exists only as the unity of the manifold whose central principle of connexion it is" (p. 17) becomes transformed in ten short pages into a "*focus imaginarius* into which the multiple relations which constitute the intelligible world return"—a "*principle of unity*". To cut short this comparison of contradictory statements, the language first used regarding the self conveys, as clearly as language can convey anything, that the self is objective and real, is ontological; while the second view taken is that the self is merely formal and logical. The first view is that the self and the real cannot be separated without "substantiating abstractions"; the second view is that to unite them is to "hypostatise an abstraction" (p. 30).

But, as we advance further, it appears that the outcome of the transcendental view of the self is not in reality either that the self is the real world, or that the self is a mere logical form or abstract unity of thought. The view which finally emerges is that self is the "ultimate category of thought" (p. 98). So far as the varying expressions permit us to judge, this is Prof. Seth's real thought in the matter. It is, at least, the view which is unambiguously reiterated in his 'Discussion' in MIND xiv. 117. It is stated once in connexion with passages which have been quoted as belonging to the first interpretation: "The transcendental self, as an implicate of all experience, is for a theory of knowledge simply the necessary point of view from which the universe can be unified, that is, from which it becomes a universe" (p. 20). It is elsewhere stated that the transcendental theory of knowledge resolves itself into an immanent criticism of categories, or of the conceptions by which we express and unify our experience. This criticism shows that self-consciousness is the highest category—the most adequate to

determine existence. We are thus "justified in using the conception of self-consciousness as our best key to the ultimate nature of existence as a whole" (p. 89). In fine, "self-consciousness is the ultimate category of thought—that through which we think everything else, and through which alone the universe is intelligible to us".

I cannot persuade myself that this third conception of self-consciousness is identical with either of the other two. It means less than the first, which identifies the self with the world; it means more than the second, which makes self-consciousness a merely formal or abstract unity of thought. For it must be remembered that Kant would no more have accepted self-consciousness as the ultimate category of experience, or as a category of experience at all, than he would have accepted it as identical with the real world. In fact, the various expressions which Prof. Seth has quoted with approval from Kant are directed as much against making self-consciousness a category of experience as against making it a real self-existent being. How can the "poorest of all our ideas" be the richest and most comprehensive principle of philosophic explanation? The very reason for holding that the self is merely a logical unity of thought is that the self cannot be employed to determine experience at all. But perhaps it may be said that it was just the result of the Hegelian development of the Kantian method and presuppositions to demonstrate that the self, instead of being the emptiest of categories, a conception the sole use of which is to show that all our thoughts are accompanied by consciousness, is the organic system, the reality of all categories. I am not in the least concerned to deny such a contention. But this contention only shows the inadequacy of defining the self as a "merely logical qualitative unity of self-consciousness in thought generally," and not that it is consistent to unite such a view with a view that the self is our ultimate principle of verifying and explaining experience. Indeed, the purpose of Kant in calling the self merely logical was to oppose it to experience; but, when it is said from the point of view of the Hegelian development of Kant that the self is the highest logical category, the idea conveyed is that of the complete correlativity of thought in general, and this thought in particular, to experience. When Kant speaks of a logical unity of thought he means that thought is formal, not real; Hegel in speaking of a logical unity means that thought is real and not formal. The relation between thought and knowledge is not at all the

same in the two cases. With Hegel, to say that self is the highest type of thought is to say that self-consciousness is the ultimate principle of knowledge. The object of Kant is to show that the self, since merely a principle of *thought*, is not a principle of *knowledge* at all. While both therefore might call the self "the logical exposition of thought in general," the phrase would have absolutely opposed meanings in the case of the two writers.

No relation of opposition exists between the transcendental self as equal to the real world and as equal to the ultimate category—between, that is, the first interpretation and the third which Prof. Seth gives. But although not opposed, they are not the same. To pass directly from the one to the other *would* be to hypostatise an abstraction. The transition may be justifiable, but it cannot, of course, be assumed without justification. The transcendental self may be the highest thought of the world, but it cannot be said to be the correlative of the world, unless the content of the world can be shown to be exhausted in thinking it—or unless the transcendental self is more than a principle of thought. Because thought is objective, it does not follow that it is all there is of objectivity. The world as thought—and thus brought under the principle of self-consciousness—may be real as far as it goes, and yet not be identical with the world as known—with the whole meaning of the real world. The known world may be, for example, a world thought and felt, and not thought alone. Thus while self-consciousness—if it equalled only the ultimate category of thinking—would be an adequate determination of the world as thought, it would, after all, be only a partial determination of the whole as it really exists, and could not thus be called, as Prof. Seth at first calls it, a term convertible with the world and having the same content.

These may appear distinctions so notorious that it is trifling to spend so much time upon them; but the fact that so experienced a writer as Prof. Seth has presented all three interpretations as explications of the meaning of the "transcendental self" is my excuse for dwelling upon them. There is a certain kinship, indeed, between the three interpretations which would render it easy to pass unwittingly from one to another. The idea of the self as the ultimate category of philosophic explanation stands between the other two. Its content is logical, or thought; and thus when one is arguing against a writer who seems to transform this category into an existence by itself, it is easy to go

to the extent of saying that it is *merely* logical, and approve an author who held to the view that it was wholly abstract, even though that author meant by that expression that self was not a category of explanation at all. But, on the other hand, having in mind the fact that self-consciousness is a notion for explaining the world in a sense in which mere 'being' or 'quantity' or 'mechanism' is not,—that it exhausts the meaning of the universe as an object of thought,—it is easy to go to the other extreme, and hold that self-consciousness *is* the intelligible world seen from one of its sides. But none the less the conception of self as merely formal and abstract contradicts the other two conceptions; and these other two, while not mutually incompatible, are so far from being identical with each other that to pass from one to the other without more ado is to "erect an abstraction into a concrete existence".

II.

As the object of this paper is not to convict Prof. Seth of either verbal or real inconsistencies, but to help to clear up certain ambiguities in the current use of the conception of 'transcendental self' (these ambiguities finding an unusually clear expression, as it were, in Prof. Seth's book), I wish now to pass to the historical origin of these various meanings, chiefly as found in Kant, incidentally in Hegel as related to Kant.

Kant's theory is brought out in his 'Transcendental Deduction'. This is so familiar that it may be given summarily. Its gist, in the second edition of the *K. d. r. V.*, is the proof that the identity of self-consciousness involves the synthesis of the manifold of feelings through rules or principles which render this manifold objective, and that, therefore, the analytic identity of self-consciousness involves an objective synthetic unity of consciousness. That self-consciousness is identical is, in itself, a merely analytic proposition. It means nothing more than that I am I—that what *I* am conscious of is in *my* consciousness, and that what belongs to your consciousness I am not conscious of. It finds its empirical application in the fact that, unless the consciousness which has ideas to-day is identical with that which was conscious yesterday or a year ago, it can no more now be conscious of what it was conscious of then than it can now be conscious of what is in your consciousness. But this does not prove the existence of any real self or substantial mind. It is still an analytic proposition and means that the same consciousness is the same consciousness. But if we

ask how we know this sameness or identity of consciousness, the barren principle becomes wonderfully fruitful. For we do not know this sameness through the various successive ideas ; they are not the same, but *ex hypothesi* various. And, furthermore, instead of knowledge of the identity of self depending upon them, I should not know them even as various, unless they were already mine. The identity of self-consciousness cannot be derived from knowledge of them, for this knowledge presupposes that identity. But perhaps we may go behind the apparent variety and disparateness of our ideas, and say that one consciousness *accompanies* all these different ideas, and that knowledge of this common element is the knowledge we are in search of. This does not suffice. The mere fact that consciousness accompanies every idea gives no identity unless these ideas are already conceived as *mine*—unless identity is presupposed. Otherwise, I should “have as various and many-coloured a self as I have different ideas”. If we say that the *common* element gives us that knowledge of the identity of self which we are in search for, we doubly beg the question. A common element means an identity present in the midst of difference, and thus presupposes the sameness of consciousness through different ideas ; and knowledge of this common element could be attained only if it were possible to compare many and various ideas in *one* consciousness, and thus see that they had a common element. These methods of knowing the sameness of consciousness thus presuppose what they would account for.

The sole way of accounting for this analytic identity of consciousness is through the activity of consciousness in connecting or “putting together” the manifold of sense. Since this putting together occurs according to fixed rules and principles, it is an objective synthesis. Knowledge of the identity of self presupposes, therefore, a self which acts synthetically, regularly so, upon sense-material. “The original and necessary consciousness of the identity of one’s self is, at the same time, a consciousness of the equally necessary unity of the synthesis of all phenomena according to conceptions. . . . The mind would never conceive the identity of itself in the manifoldness of its ideas, if it did not perceive the *identity of the action by which it subjects this manifoldness to unity.*”

The ‘Deduction’ in the first edition, instead of beginning with the consciousness of self-identity, begins with the consciousness of objects, and asks what is involved in that. The answer is the same. Consciousness of objectivity

means unity of self-consciousness, and this not a formal or analytic activity, but one which connects the manifold of sense according to rules or conceptions. Whether, then, we inquire what is involved in mere sameness of consciousness, or what is involved in an objective world, we get the same answer: a consciousness which is not formal or analytic, but which is synthetic of sense, and which acts universally (according to principles) in this synthesis.

Apparently we have here a conception of the transcendental self like the first one laid down by Prof. Seth. This self, since its existence is its synthetic activity upon the particular manifold of sense, is thoroughly objective. It has precisely the same content as the real world. And the objective world, since it turns out to be the synthesis of particulars of sense through the action of self according to conceptions, is subjective; it has the same content as the transcendental self. It is the transcendental self looked at as 'there,' as a product, instead of as an activity or process.

The next step in the analysis is to see why Kant, after having attained to the conception of an objective self, should shift his ground. Kant, in reaching this result, or in his transcendental deduction, has proceeded as if the synthetic action of self and the manifold of sense were wholly constituted through their mutual relations to each other—as if each had no existence excepting as a factor in the self, or in the world, determined by the other. The conceptions exist only as synthetic activity upon the manifold of sense; the manifold of sense exists only as connected by these conceptions. But while Kant has chosen in the deduction to consider them as mutually related to each other, they have a meaning entirely apart from this mutual qualification, which, having been abstracted from in the transcendental deduction, must now be brought in that we may see how it affects the result.

The final meaning of the manifold of sense is found, not in its relation to the synthetic notions of the understanding, but in its relation to a thing-in-itself which produces it. In order to be known by us, this manifold must, indeed, be subjected to synthesis, and enter into relation to the self. But it has its own being entirely apart from such qualification. And, on the other hand, the conceptions of the understanding are not exhaustively determined by their synthetic action upon sense. They have a nature of their own, entirely independent of this synthetic action. The transcendental deduction does not give us, therefore, an analysis of the self, or of knowledge, or of the world as

such ; but simply of the conditions under which a manifold of sense (having a nature outside its relations to self) is knowable by us, or of the conditions under which conceptions of the understanding become categories of experience, these conceptions having their real and essential meaning, all the while, in a purely logical character which belongs to them apart from knowledge or experience. The transcendental self is thus a name for the incident under which our knowledge occurs, instead of giving the analysis of knowledge itself. It cannot be identified, therefore, as at first it seemed it might be, with either the real object (the thing-in-itself) or with the real subject. Just as the synthetic principles of experience are in themselves logical forms of analytic thought, so the self, in its own nature, is known only as the bare unity of these logical forms, the simple 'I think' that must accompany all thought. The introduction of the thing-in-itself, therefore, leads Kant to that view of the self which finally gets expression in the quotations which were made in connexion with Prof. Seth's second idea of the self. For it must be remembered that the introduction of the thing-in-itself into Kant's philosophy affects all the factors which enter into his account of knowledge—the nature of thought as well as the nature of sensation. It is not an excrescence which can be lopped off without reconstruction of the whole theory of knowledge. Do away with the thing-in-itself, and the conceptions, instead of being *merely* logical, are also real, for their whole existence and meaning will then be found in their synthetic relation to the sense-manifold. And the transcendental self, instead of denoting a "logical exposition of thought in general," marks the synthetic union of the logical with the manifold of sense through regular principles of activity—marks, therefore, the objective character of the self. For if we reconstruct the Kantian theory of knowledge upon its own basis and method of analysis, doing away with the thing-in-itself, the result is to show that the *merely* logical, equally with the *merely* ontological, is an impossible abstraction. The *merely* logical is not at all ; the logical is only as the thought-factor in the entire determination of experience, requiring another factor in order to constitute the self. That Kant's position of the merely formal abstract character of the self is superior in consistency to that of some Neo-Kantians is, therefore, not so evident as is the inconsistency of the restatement of such a position by one who denies the whole notion of the thing-in-itself.

But even if we correct Kant's analysis by doing away with

the thing-in-itself, retaining all features not inconsistent with it, can the result of the transcendental deduction stand without further interpretation? Admitting that the removal of the thing-in-itself would show the transcendental self not as a logical abstraction, but real as experience itself—more real, indeed, in the sense that the reality of experience is shown by analysis to involve the reality of this self, behind which we cannot go—would this removal give a self whose content was the same as the content of the known world? The answer must be in the negative. The known world is constituted by the manifold of sensation, as connected by the self through its principles of synthesis. The content of the world, as known, will not be equivalent to the whole significance of the self, therefore, unless sensation is capable of being connected by principles of synthesis which manifest the entire nature of the self. But the position of Kant (a position entirely independent of any notion of *Ding-an-sich*) is, that sensation is incapable of being so determined as to equal self-consciousness; or, if we put it from the other side, that self-consciousness, even as a real activity of synthesis, can never exhaust all its synthetic capacities upon a material of sense. Sense is, as it were, inadequate to the relations which constitute self-consciousness, and thus there must also remain a surplusage in the self, not entering into the make-up of the known world. The reason for this is, that all the manifold of sense must be determined by certain forms of perception, space and time, before being determinable by the categories of thinking. Perhaps it would be more in accordance with the Kantian spirit to say that sensation, since it is in relation to space and time, must always present itself to the synthetic action of self as a manifold of mutually external particulars. The conceptions are thus not capable of determining sensation independently, but only as sensation is already subject to time- and space-*cadres*. Every category, therefore, must receive its value from its application to sensations already a manifold of external particulars, and the result can be only the system of objects in time and space. No category of experience can be found, accordingly, higher than that which determines most exhaustively the relations of objects and events in time and space, *viz.*, reciprocity. And, correspondingly, no object can be known which is not an object in space and time. Hence the impossibility of making the self an object, since it is the condition of all objects, through its synthetic action upon sense. Stated in more Kantian language, the result would be that self-consciousness is the unconditioned, while experi-

ence, owing to the necessary relation of the synthetic activity of self to a material already determined as externally limiting and limited, can never present an unconditioned.¹ There thus remains a distinction between self and experience, due not now to the shadow thrown on knowledge by the thing-in-itself, but by the incompatibility of sensation, as rendered a manifold of external particulars in space and time, to the unconditioned content of self-consciousness. Experience can never be complete enough to have a content equal to that of self-consciousness, for experience can never escape its limitation through space and time. Self-consciousness is real, and not merely logical; it is the ground of the reality of experience; it is wider than experience, and yet is unknown except so far as it is reflected through its own determinations in experience,—this is the result of our analysis of Kant, the *Ding-an-sich* being eliminated but the Kantian method and all presuppositions not involved in the notion of the *Ding-an-sich* being retained. The resulting conception of the self is, evidently, not equivalent to either of Prof. Seth's two first definitions of the self. It is not a mere abstract and formal logical unity, for it involves the action of thought upon sense, and is thus synthetic and objective; and yet it is not one side of the world of experience. The world of experience is constituted by it, but the world of experience does not exhaust it.

We have next to consider the relation of this revised Kantian conception of self to the third notion of self stated in Prof. Seth's book—the idea of self-consciousness as the highest category of thought and of explanation. So far we have dealt only with the general idea of thinking as synthesis of sense according to principles. The different forms of synthesis, or the categories, we have not dealt with. Kant, as is well known, had twelve of them, which he derived without

¹ I do not mean to imply that I regard Kant as teaching that objects are first given as objects in space and time, and that the action of thought follows upon the presentation of such ready-made objects; or that there can be perception without conception. On the contrary, I think that Kant teaches very distinctly that space and time (and, of course, with them everything in space and time) do not exist as perceived objects without the action of thought. But he also holds that the manifold of sense which thought synthesises has already a formal element which determines it to relations of externality. The fact that thought never connects pure sensations as such, but only sensations partially determined by relations of perceptivity, would occupy much the same place now occupied by the notion of schematism in Kant's theory, if this theory were reconstructed merely on the basis of the elimination of the *Ding-an-sich*.

further examination from certain notions which he found to be involved in the formally logical theory of judgment. It was the work of Hegel, first, to give an *independent* derivation of them, as contrasted with Kant's taking them for granted; secondly, to give an *organic* derivation of them, in placing them in relation to one another, as contrasted with the simple juxtaposition of them which is found in Kant; and, thirdly, to show the category of self-consciousness as their basis and system, instead of stopping short with reciprocity, and placing the categories in opposition to self-consciousness. Now, accepting Hegel's work so far as it thus relates to the categories, and accepting his criticisms upon the Kantian procedure in reference to them, let us again revise the Kantian results in view of Hegel's position. Will this give us the self as the supreme category of experience? The answer must be in the negative. In one way the Kantian conception will include more than the Hegelian; in another way, less. It includes more, because what Kant offers is not primarily the self as a category of explanation at all, but the self as the real ground (not, however, to be confused with cause) of experience.¹ It includes less, because, however ready Kant might be to admit the Hegelian criticism and derivation of the categories as superior to his own, he could not admit that self-consciousness may be used as a category of experience. Self-consciousness would still have the function of the Idea for Kant. It would be an ideal regulative of experience, not a category constitutive of it.

Considering first this latter point, we may say that, admitting Kant's derivation of the categories from the forms of syllogistic logic to be insufficient and artificial, granting that it is impossible to stop short with the category of reciprocity, it does not follow that the category of self-consciousness is a category of experience. The distinction between conceptions of *thought* and conceptions of *knowledge* still remains. The reason for this we have already seen. It is the peculiar relation of the categories to sense as qualified by the forms of space and time. While, therefore, we might have the thought of self-consciousness, and while as a thought it would not be empty but would be, in another sense from that in which Kant actually uses the term, the vehicle of all notions of thought—their organism, it would be impossible to use this category so as to determine sense by it. For it is impossible

¹ It will be understood that we are now speaking of Kant as revised by the elimination of the *Ding-an-sich*.

as long as we retain Kant's fundamental presupposition—the idea of the partial determination of sensation by relation to perception, apart from its relation to conception—to employ self-consciousness as a principle of explaining any fact of experience. Every fact of experience is capable of adequate explanation without any such category ; or, conversely put, experience can never convey anything adequate to the notion of self. Self-consciousness would thus be an ideal category—that is to say, it would suggest the notion of a possible experience, unlike anything that *we* can possibly experience. It would be a notion which should regulate the successive organisation of our present experience by pointing to a goal that yet we never could reach, and which should also point out the limitation of our present experience.¹

The reconstruction of the Kantian theory of categories in the light of the Hegelian logic would give the following points. First, it would derive the conceptions from a common root and place them in some organic connexion with one another. Secondly, it would place the Notion of the understanding and the Idea of reason in some connexion with each other. The reason, with its Ideas, would not then appear, as it does now, an accidental afterthought of Kant, or an arbitrary derivation from the theory of the syllogism. The conception included under the Idea would follow by immanent development and criticism from what are now called Notions of the understanding, and would follow as their basis in thought. The distinction between them would be between conceptions that may be used to connect sensations subject to space- and time-forms and those that may not be so used. Thirdly, the ideas of organism and teleology, which also now appear to be unconnected with the rest of the Kantian philosophy, sprung upon us without intrinsic necessity, would form part of the content of the Idea as distinguished from the Notion. And, finally, the distinction Kant now makes between theoretical and practical reason, between the fact which is and the ideal which ought to be, would get an organic connexion with the rest of the philosophy. This gives the outline of a reconstruction of his ethics ; for it would appear that it is just the business of moral experience to overcome that distinction between experience and self-consciousness which theoretical know-

¹ The distinction would thus be analogous to, perhaps identical with, the distinction Kant draws between our intelligence, in which the immediate and the mediate element never wholly coincide, and an intelligence which may be described either as Intuitive Reason or a Rational Intuition.

ledge cannot remove. All this we can get, if we read Kant with the eyes of Hegel ; but self-consciousness as an actual category of our scientific experience we cannot get unless we simply substitute Hegel for Kant.

But it is time to turn to the other point : that the transcendental self of Kant is more than self-consciousness as a supreme category of explanation. It is more, because the self of Kant (the self as it would be with the *Ding-an-sich* eliminated) is more than any category : it is a real activity or being. And it cannot be said to be more than a category only because he has hypostatised a category—that if he had understood himself he would have seen that it was just a category. There is a fundamental distinction between the Kantian critique of pure reason and the Hegelian theory of categories which makes their results disparate. Kant's object is not the examination of *thought*, but the examination of *knowledge* ; and his method is not a consideration of the significance, placing, relative adequacy and inadequacy of the conceptions or aspects of thought with a view to discovering the entire meaning of thought ; his method is an analysis of the *actual* factors which actually constitute knowledge. One of these factors is thought, and, therefore, the complete carrying out of the method would undoubtedly involve an examination of thought as specified into its various conceptions. But because the Hegelian *Logic* is the development of one factor in Kant, it will hardly do to say that the purpose of the Kantian *Critique* is exhausted in the purpose of Hegel's *Logic*. At least, if we do say it, it should be with the distinct consciousness that we are not completing Kant, but are abandoning the characteristic feature of his undertaking and of his method. This is, I repeat, not an immanent "criticism of categories" but an analysis of experience into its aspects and really constituent elements. And in the course of this analysis Kant comes upon a self which through various principles of synthesis puts together the manifold of sense and, thereby, constitutes experience. This, indeed, is not a theory of creation ; it is not an attempt to tell how a self set to work, or by necessity would set to work, to make a universe. But because it is not a theory of creation, it does not follow that it is only a criticism of categories. The assumption that there is no middle ground between a theory of creation and a mere analysis of forms of objective thought is, to say the least, a curious one. Kant's method is the analysis of the known universe or of experience ; and as a result it discovers a self acting through thought upon sensation. Thought as synthetic is action

upon sense, and sense is through the synthetic action of thought. If we call them factors of experience it must be with the recognition of their intrinsic unity with each other. The self constitutes this unity; it is the activity which is the source of the correlative synthesis of thought and sense. That analysis of reality should give anything but reality would be a strange result. And the reality found by the Kantian method through analysis of reality is a self which through thought is synthetic of sense determined to be a manifold of limiting particulars by relation to space and time.

There are two strains in Kant: one is inquiry into the necessary thought or logical conditions of experience; the other is the inquiry into the actual nature of experience. The *Logic* of Hegel undoubtedly works out the former to its consistent results. The latter it does not come in contact with. The former inquiry asks what are the forms or principles by which we must think the world; or, from the other side, what the world must be, as thought. The answer is that to think the world in its completeness is to think it as self-consciousness. Now this proposition is, as I attempted to show in the earlier portion of this article, not convertible with the proposition that the world *is* self-consciousness, unless it is also shown that the world is only and just as it is for thought. But the result of Kant's inquiry into the *actual* nature of experience is to show (to his satisfaction, I mean, the *truth* of the results not being under examination) that it includes another element besides thought, namely, feeling, and that on account of this element—or at least on account of its peculiar relation to forms of perception—the world as experienced can never equal the world as thought. That is, while to *think* the world completely is to think it as self-consciousness, it is the very characteristic of experience or *knowledge* that it cannot be complete—and hence cannot give self-consciousness.

We have thus another conception of self-consciousness to put beside the three obtained from the analysis of Prof. Seth. This is the conception which we reach in reconstructing Kant by means of the elimination of the *Ding-an-sich*, and by that more complete working-out of the logical side of his analysis of experience which was made by Hegel. This is the self as the activity of synthesis upon sense. Starting from this notion the other three notions may be at once placed with reference to it. The self as the *merely* logical or abstract unity of thought falls away entirely. Self-consciousness as a category of experience becomes changed

into an ideal which serves at once to organise and to reveal the incompleteness of experience. Where (as in ethics) the ideal *is* the reality, self-consciousness is again a real category of experience—but of practical experience, not of theoretical. The self which could use the category of self as a category of both practical and theoretic experience would be a self whose content was the same as that of the world. "The self and the world are only two sides of the same reality" in this case. While from the standpoint of Hegel's *Logic* (I am not speaking of the rest of his philosophy) such a result could be reached only by substantiating a category, from the standpoint of Kant's *Critique* it would be reached as an analysis of the reality of experience—if it were reached at all. But it can be reached only as an ideal which serves by contrast to manifest the incompleteness of experience as it presents itself to us.

It is evident that we are now upon the verge of another difficulty. As long as sensation was regarded as given by a thing-in-itself, it was possible to form a conception of the self which did not identify it with the world. But when sense is regarded as having meaning only because it is 'there' as determined by thought, just as thought is 'there' only as determining sense, it would seem either that the self is just their synthetic unity (thus equalling the world) or that it must be thrust back of experience, and become a thing-in-itself. The activity of the self can hardly be a third something distinct from thought and from sense, and it cannot be their synthetic union. What, then, is it? This is, I take it, the problem which finally emerges, when Kant is made self-consistent by the elimination of the thing-in-itself, and when the logical or thought-factor of his philosophy is developed in the Hegelian manner. It is precisely, as it seems to me, the difficulty which comes to the front in Green's reconstruction of Kant. It is to meet this difficulty that he frames the idea of a completely realised self making an animal organism the vehicle of its own reproduction in time. The conditions of the problem are: a denial of the *Ding-an-sich*; the analysis of knowledge into thought, and feeling which is *ξρεπον* to thought; the recognition that this feeling, after all, exists only as determined by thought; and the belief that feeling enters into *our* knowledge only under conditions of space and time, although space and time, in themselves, are feeling determined by thought. No space remains to consider how far Green's conception of an eternal self communicating itself gradually through physical conditions, and thereby constituting a human self, meets

the demands of the problem. But it is evident that, when the problem is conceived as just stated, the self cannot be thought of as equivalent, on the one hand, to the world, because this world, as knowable by us, is always subject to certain forms, namely, space and time, which condition sense; nor, on the other hand, as equivalent to the highest category of thought, because the self is more than thought, more than a category, namely, the activity of synthesis of sense through thought. It is, I think, this twofold character of time and space, as at once forms of knowledge conditioned by the self, and yet conditioning self as it works in us, that is the genesis of Green's notion. The truth of the conditions upon which it rests—that is, Kant read in the light of Hegel so far as is necessary to make Kant consistent—is not under examination here; but if we grant it, the theory of Green is a genuine attempt to meet a genuine problem, and not a mere hypostasis of an abstraction.

V.—SOME PROPOSED REFORMS IN COMMON LOGIC.

By CHRISTINE LADD FRANKLIN.

The whole field of Deductive Logic, even when thought of merely in the terms of common language, has acquired, for the student of Symbolic Logic, a symmetry and a completeness and a simplicity which it is, apparently, far from possessing in the minds of its usual exponents. The natural repugnance which the ordinary logician felt, at first, to seeing processes of deductive reasoning made the subject of a great development by a purely mechanical process, has in great part passed away; it would have been hard for it to survive the eloquent persuasiveness of Mr. Venn's *Symbolic Logic*. It seems, therefore, to be time for the simplified ways of looking at things which prevail in Symbolic Logic to begin to sink into the elementary expositions of the subject. The simple reforms which I am about to propose in the present paper have nothing in the world to do with Symbolic Logic; but they will, nevertheless, be most likely to commend themselves to one who has been in the habit of moving in the orderly region to which that discipline has reduced the field of Thought.

I.

ON THE NAMING OF RELATED PROPOSITIONS.

It need hardly be stated that the object in giving a name to a group of things is to furnish the mind with an artificial contrivance by which it can, mechanically, call up to consciousness the properties which those things have in common, and which mark them out from other things to which the name is not applied. That system of naming is best which sets forth, in itself, the greatest possible number of resemblances and differences; which is such, in other words, that, when the names of which it is composed have once been learned, as little as possible remembering of relations is left to be done by the mind by main force. A subsidiary requirement, but one which it is not too much to say should always be met, is that the same thing, if it is a subject for consideration in several different branches of learning, should receive the same name in all. There is a set of words which the logician uses—'obverse,' 'converse,' 'reciprocal,' 'contrapositive,' 'inverse,' &c.—which do not meet either of these requirements. 'Obverse' has been adopted by the Society for the Improvement of Geometrical Teaching for a different

proposition from that to which it is usually applied in Logic, and the school-boy who learns in one class-room that 'Non-A is non-B' is the obverse of 'All A is B,' has to painfully bear in mind that its obverse is 'A is not non-B' when he enters another. Nor is there any consensus among logicians themselves as to the use of these names. I propose to show that a new set of names, not very different from those now in use, would enable one to set forth the affinities of the things named in a way that is not even aimed at at present.

'All x is y ' and 'No non- y is x ' are propositions which stand to each other in a certain relation. In what terms we shall describe that relation can only be decided after we have fixed upon our definition of proposition. But there are two definitions in common use, and the proposition is a totally different *thing* according as one or the other of them is adopted. According to one, a proposition is "a portion of discourse in which a predicate is affirmed or denied of a subject"; according to the other, "*every portion of knowledge conveyed in language, everything propounded for belief or disbelief,*" is a proposition. But by the latter definition, the two statements just made about x and y are *one and the same proposition*. As statements of fact, as descriptions of the universe in terms of x and y , they are identical; each has the effect simply to deny the existence of the combination $x\bar{y}$. But they do not affirm or deny the same predicate of the same subject, and hence, in the other sense of proposition, they are not the same. I conceive that the latter, that is, the material, sense of the word is the more useful and convenient, and that it is better to say that

- 'All x is non- y ,'
- 'All y is non- x ,'
- 'No x is y ,'
- 'There is no x which is y ,'
- 'There is no y which is x ,'
- 'The combination xy does not exist,'
- 'Everything is either non- x or y ,'
- 'Everything is either y or non- x ,'
- 'There is nothing but non- x and y ,'
- 'There is nothing but y and non- x ,'

are all *different forms of the same proposition*, than to say that they are different propositions. But if logicians prefer to use the word in the sense of the Conceptualists, then it is incumbent upon them to furnish some other common name for the above group of propositions. There is a very important respect in which they are one and the same *thing*, and it ought to be possible to indicate that fact by a name. It might be said that they are the same statement-of-fact, or the same description-of-the-universe, or, possibly, simply the same statement, but it seems a pity to

introduce a new technical term into Logic, when 'proposition' and 'form in which it is expressed' answer the purpose perfectly well.

Before proceeding to invent names for the (universal) propositions related to $x \prec y$ ('All x is y '), it will be well to set forth the entire lot of propositions to be named. They are fifteen in number (sixteen including the original proposition); viz., there are four different descriptions of the universe in terms of x and y , according as one or another of the combinations, xy , $\bar{x}\bar{y}$, $x\bar{y}$, $\bar{x}y$ is said not to exist, and each of these statements can be expressed in four different ways. The following table will represent them.

TABLE I.

	o	c	0	∞
A	$x \prec y$	$\bar{y} \prec \bar{x}$	$x\bar{y} \prec 0$	$\infty \prec \bar{x} + y$
V	$\bar{x} \prec \bar{y}$	$y \prec x$	$\bar{x}y \prec 0$	$\infty \prec x + \bar{y}$
E	$x \prec \bar{y}$	$y \prec \bar{x}$	$xy \prec 0$	$\infty \prec \bar{x} + \bar{y}$
I	$\bar{x} \prec y$	$\bar{y} \prec x$	$\bar{x}\bar{y} \prec 0$	$\infty \prec x + y$

The propositions in any row are different expressions for the same state of facts, and the propositions in any column are different facts in the same form of expression. The propositions in the principal diagonal (they are indicated by being inclosed in heavier lines) may be looked upon as the fundamental forms of expression for the four different statements of fact. The first and third, 'All x is y ' and 'There is no x which is y ,' are the Aristotelian propositions, and I shall indicate them, as is usual, by the letters A and E. The second and fourth are the propositions introduced by De Morgan. I propose to indicate them by the same letters inverted, v and i, and to call these symbols *ad* and *ed* (the *d* in the name carrying an allusion to De Morgan). $y \prec x$ is got from $x \prec y$ by turning it about, and that suggests turning about the symbol; and so with E and i. $x \prec y$ and $y \prec x$ are together equivalent to the identity $x = y$ (or $\bar{x} = \bar{y}$), and in the same way $x \prec \bar{y}$ and $\bar{y} \prec x$ are together equivalent to the identity $x = \bar{y}$ (or $\bar{x} = y$). As the representative of an identity, I shall use \odot ; it symbolises the flowing together of the two propositions A and v, or E and i. (For

¹ Any other two distinct propositions whatever out of this scheme are equivalent to the denial of the existence of some one of the terms x , y , \bar{x} , \bar{y} . For instance, v and i, $\bar{x} \prec \bar{y}$ and $\bar{x} \prec y$, assert together that 'Non- x is neither y nor non- y ,' and hence that 'There is no non- x '. It

the corresponding particular propositions, the contradictories of these universals, I propose to use the corresponding small letters.) The four fundamental universal propositions expressed in the forms most appropriate to each,—expressed as it would be necessary to express them if our language did not permit the application of the modifier, *not*, to terms,—are,

A	$x < y.$	All x is $y.$
\forall	$y < x.$	All y is $x.$
E	$xy < 0.$	There is no xy (or, No x is $y).$
E	$\infty < x + y.$	Everything is either x or $y.$ ¹

The capital letters by themselves shall indicate the substance of the propositions; when it is desirable to specialise the form in which they are expressed, subscript characters shall be attached to them. The subscript *o* shall indicate that the subject and predicate of the proposition have their original position, *c* that they have both been contraposed, *0* that they have both been put back behind the copula, and ∞ that they have both been put forward in front of it. We shall then have, as regards form, for any four identical propositions,

A	$x < y.$	All x is $y.$
A _c	$\bar{y} < \bar{x}.$	All non- y is non- $x.$
A ₀	$x\bar{y} < 0.$	No x is non- $y.$
A _{∞}	$\infty < \bar{x} + y.$	Everything is either non- x or $y.$

All the sixteen propositions which are related to $x < y$ can then be *symbolically* named without any difficulty; the character of the letter marks the content of the proposition and the character of the subscript marks its form. It remains to invent a series of *names* which shall have the advantages possessed by this set of symbols, and the main fact to be set forth in the names is that some of these related propositions are, in a certain respect, the *same* as the original proposition, and that others are not. $\bar{y} < \bar{x}$

is common among logicians to say that two such propositions are incompatible; but that is not true, they are simply together incompatible with the existence of x . When the school-boy has proved that the meeting-point of two lines is not on the right of a certain transversal and that it is not on the left of it, we do not tell him that his propositions are incompatible and that one or the other of them must be false, but we allow him to draw the natural conclusion that there is no meeting-point, or that the lines are parallel.

¹ I use ∞ as an abbreviation for 'everything,' because it is easily read in that sense. For those students who are afterwards to study Symbolic Logic, it would be as well at once to write 1 as the symbol for the universe of discourse.

is usually called the 'contrapositive' proposition to $x < y$. I propose to call it the *contraposed* proposition (or, as I prefer to say, the *contraposed form* of the same proposition), where *contra* shall mean that the subject and predicate have both changed places. The participial termination in *contraposed* carries with it the intimation that the thing to which it applies is merely a modified form of expression for the same description of the universe. For the proposition $y < x$ (considered in its relation to $x < y$), geometers use the word 'converse' and logicians the word 'inverse'. I suggest the word *contraverse* as a ground for compromise, and the reason for it is that the *contra* indicates (the same as in the word *contraposed*) that the subject and the predicate have both changed places, the non-participial ending indicates that the proposition is *not* the same as the original one, and the last syllable indicates that the latter has suffered a complete inversion (or version) in sense. The word 'obverse,' logicians apply to the proposition 'No x is non- y ' (or, ' x which is non- y is non-existent,' $\bar{x}\bar{y} < 0$), and geometers to the proposition $\bar{x} < \bar{y}$. If the word be retained in the latter sense, then the *verse* in the words *contraverse* and *obverse* can serve the student as a mechanical reminder of the fact that the propositions to which they refer are, in meaning, equivalent. I therefore propose the following table of names for the sixteen forms of statement that can be made in terms of x and y and their negatives:—

TABLE II.

	o	c	0	∞
A	original $x < y$	contraposed $\bar{y} < \bar{x}$	retroposed $x\bar{y} < 0$	pro-posed $\infty < \bar{x} + y$
V	obverse $\bar{x} < \bar{y}$	contraverse $y < x$	retroverse $\bar{x}y < 0$	proverse $\infty < x + \bar{y}$
E	oblate $x < \bar{y}$	contralate $y < \bar{x}$	retrolate $xy < 0$	prolate $\infty < \bar{x} + \bar{y}$
∞	offert $\bar{x} < y$	contrafert $\bar{y} < x$	retrofert $\bar{x}\bar{y} < 0$	profert $\infty < x + y$

The upper left-hand quadrant contains the propositions which there is most frequent occasion to refer to; they are of constant use in geometry, and it would doubtless conduce to clear thinking (and not be a feat impossible of accomplishment) if they were introduced into common life,—at least, in that stratum of society which has once studied geometry. The names in the upper

right-hand quadrant are constructed mechanically, or nearly so, after those of the first quadrant have been fixed upon. The *retroposed* proposition, $xy < 0$, is that in which the predicate has been brought back and joined to the subject, and the *proposed* (the name is not good, but there seems to be nothing else which fits in with the entire scheme) is that in which the subject has been brought forward and joined to the predicate. As a general name for bringing over any term from one side of this copula to the other, the word *transposing* may be used.¹ It is the word which already means, in Algebra, bringing from either side of the sign of equality to the other. The fact that in the passage what was a positive term becomes a negative term, and conversely, does not prevent our thinking of the process, in Algebra, as the bringing over of a term, nor should it do so in Logic.

The names in the third and fourth rows are mere nonsense-words, but they suffice to complete the scheme. They may be of use at some future time, when the human mind has become much more nimble than it is now in logical forms. And, in any event, the facility with which they can be made up serves as ground for the definitive adoption of the names in the first quadrant. *Retroposed* is not so good a name for the proposition $xy < 0$ when it is put in words as 'no x is non- y ,' as when it is expressed ' x which is non- y is nothing,' but in the former case it may at least be looked upon as a nonsense-word. The main point which I wish to insist upon is that, since the young person has got to learn three or four of these names in any case, he should, out of humanity, since it can easily be done, be furnished with names such that the very form of the word (as the termination 'ed') carries with it the signification of *necessary and sufficient condition* that the derived proposition to which it is applied is the exact equivalent of the original one.

For such trivial changes as

from	to
There is no x which is y ,	There is no y which is x ;
No x is y ,	No y is x ;
xy is non-existent,	yx is non-existent;
Everything is either x or y ,	Everything is either y or x ;
There is nothing but p and q ,	There is nothing but q and p ;

I would propose the word *commutation*. It is the word already in use in Algebra for expressing the fact that the product ab and the sum $a + b$ are equal respectively to ba and $b + a$. But, without referring to its technical mathematical signification, it is a word which may readily be taken as meaning a change in order

¹ Prof. Bain has already felt the necessity for this word when speaking of compound propositions (*Logic*, p. 119).

without any change in value. What I particularly wish to insist upon is that

‘No x is y ’ and ‘No y is x ’
differ from each other just as much as, and no more than,
‘There is no xy ’ and ‘There is no yx ,’
and that the difference is very different in degree from that between
‘No x is y ’ and ‘All x is non- y ’.

These require the application of one of the laws of thought to prove their equivalence; those do not. If one is thinking of the intent (or import) of the propositions ‘No x is y ,’ ‘No y is x ,’ that is, if one is concerned with the fact that such a proposition affirms that none of the individuals marked out by the subject have the qualities represented by the predicate, then the propositions are different; but if one is thinking of the terms merely as names of classes, they are not different—the exclusion of p from q is the same as the exclusion of q from p . The difference which does exist is just the same as that between—

‘There are no citizen-students,’ and ‘There are no student-citizens’.

In the one case, the students are looked over, and it is found that none of them has the quality of being a citizen; in the other, the citizens are examined and found to be deficient in the quality of being a student. But Logic has no difficulty in considering citizen-student and student-citizen as, for all purposes of drawing conclusions from them, one and the same thing.¹ If it were permitted to call this trivial transformation—which is all that can take place after subject and predicate have lost their distinctness through being both (virtually) in the subject or both in the predicate—by the trivial name of ‘commutation,’ then ‘conversion’ might be reserved for the ‘conversion *per accidens*’ of the logician.

The formal definitions for these related propositions should then be the following:—

CONTRAVERSE:—a different proposition, got by taking the same terms, both in opposite places.

OBVERSE:—a different proposition, got by taking the contradictory terms, each in the same place.

CONTRAPOSED FORM:—the same proposition, expressed with contradictory terms, both in opposite places.

RETROPOSED FORM (or negative form):—the same proposition, expressed with the same subject and the contradictory of the predicate, both in the subject (or with the negative copula).

¹ The difference is symbolised by Wundt by distinguishing between cS and sC . It is, of course, sufficiently important in one “universe of discussion,” but not in that in which the sole object is the drawing of conclusions.

PRO-POSED FORM :—the same proposition, expressed with the contradictory of the subject and the same predicate, both in the predicate.

If a proposition is already in the *retroposed* form, it cannot, of course, be *retroposed* ; it can only be partly or wholly *pro-posed*.

II.

THE PARTICULAR PROPOSITION.

If a person wishes to deny the proposition 'All a is b ' in the most straightforward way possible, he says, 'Not all a is b '. The copula \prec , which means, when positive, 'is wholly' (' a is wholly b ,' or, 'All a is b '), will mean, when the sign of negation is placed over it, 'is not wholly'. $a \prec b$ may be read, ' a is not wholly b ,' or, 'Not all a is b ,' or in the words which the traditional Logic has consecrated, 'Some a is-not b '. 'Not all men are virtuous' is the same thing as 'Some men are not virtuous,' but the former is the more direct and immediate way in which to deny that 'all men are virtuous,' and therefore ought to have been chosen as the standard form of words for the contradictory of that expression. The copula, \prec , and its negative are the copulas of Mr. Peirce's Symbolic Logic, but that is not a sufficient reason for not using them in common Logic as a mere printer's abbreviation for 'is wholly' and 'is not wholly'. (The objection to Mr. Maccoll's sign for the same thing is that a non-symmetrical relation, such as that between the subject and the predicate of the universal affirmative or the particular negative, ought not to be indicated by a symmetrical sign.)

With the aid of this phonetic mark, brief expression can be given to the four different forms of the four different particular propositions as in Table III. Contradictories will be found in corresponding compartments of this and the previous Table.

TABLE III.

	o	c	0	∞
a	original $x \prec y$	contraposed $\bar{y} \prec \bar{x}$	retroposed $xy \prec 0$	pro-posed $\infty \prec \bar{x} + y$
v	obverse $x \prec \bar{y}$	contraverse $y \prec x$	retroverse $\bar{x}y \prec 0$	proverse $\infty \prec x + \bar{y}$
e	oblate $y \prec \bar{y}$	contralate $y \prec \bar{x}$	retrolate $xy \prec 0$	prolate $\infty \prec \bar{x} + \bar{y}$
e	offert $\bar{x} \prec y$	contrafert $\bar{y} \prec x$	retrofert $\bar{x}\bar{y} \prec 0$	profert $\infty \prec x + y$

The youth who is forced to tread the stony path of Logic would have his way made smoother if, since he must learn to attach some letter to the proposition 'Some x is not y ,' he could be provided with a letter which should carry with it the meaning that the proposition is the simple denial of 'All x is y '. This purpose would be secured if the contradictory of A were called either \bar{A} or a . (I think Mr. Venn says that a has been used by Gergonne with this meaning, but I cannot find the reference at this moment.) The letter alone would then indicate the statement of fact, and if it were desired to particularise the mode of expression, a subscript o , c , 0 , or ∞ might be added. The four particular statements that can be made, expressed in only positive terms, are—

- a $x \supset y$. Not all x is y , or Some x is-not y .
- v $y \supset x$. Not all y is x , or Some y is-not x .
- e $xy \supset 0$. xy is not wholly wanting, or There is some x which is y .
- o $\infty \supset x + y$. There is something besides x and y .

The four forms of statement of one and the same fact are—

- o $x \supset y$. Some x is-not y .
- c $\bar{y} \supset \bar{x}$. Some non- y is-not non- x .
- 0 $x\bar{y} \supset 0$. There is some x which is non- y .
- $\infty \infty \supset \bar{x} + y$. The world is not made up of y 's and non- x 's (of the happy and the vicious).

The relations of every proposition to any proposition which may be thought of as the starting-point can be described in exactly the same terms as in the case of universal propositions. (It should be remembered that these terms are merely relative; $\bar{x} \supset \bar{y}$ is not in itself an obverse proposition, but merely the obverse of $x \supset y$.) The identity of x with y is affirmed by the combination of two propositions A and \forall , as $x \supset y$ and $y \supset x$. It is simply denied by the alternation of two propositions a and v ; to say that the x 's are not identical with the y 's is to say that either there are some x 's which are not y 's or else some y 's that are not x 's. As any other two universal propositions amount to the simple denial of the existence of some term, in the same way, to say that either there is some y which is non- x or else there is some y which is x , is merely to say that in any case there is some y , that is, to simply affirm the existence of y .

III.

THE EIGHT COPULAS.

The four modes of expression that are given to the starting-proposition in Table I. are not the only possible modes of expression. They are the forms got by preserving the copula the same, and varying the signs and the positions of the terms. By giving different meanings to that connecting-link, the four different things may be said, both in the universal and the particular, without any change in the terms. For the sake of simplicity in the rules, a slight change may be made in Mr. Peirce's copula; namely, the horizontal line may be inverted and allowed to fall within the angle to the right, thus: \leq . For the other universal proposition which is essentially affirmative, but which is symmetrical, we can take the same sign turned up; as, $x \vee y$, 'All but x is y '. The ordinary negative proposition, 'None of x is y ,' or, ' x is wholly excluded from y ,' is naturally written with a completed wedge, $\bar{\vee}$; and for the remaining universal proposition, which is also essentially negative, 'None but x is y ,' we may use the same sign with the angle turned down, thus: $\bar{\leq}$. The particular propositions which contradict these universals will then naturally be written with the same symbols made negative or made affirmative as the case may be. The Table will then stand thus for the four different statements that can be made in both quantities:—

TABLE IV.

All of x is y .	None but x is y .	None of x is y .	All but x is y .
A $x \leq y$	V $x \bar{\leq} y$	E $x \bar{\vee} y$	I $x \vee y$
a $x \bar{\leq} y$	v $x < y$	e $x \vee y$	o $x \bar{\vee} y$
Not all of x is y .	Some besides x is y .	Some of x is y .	Not all but x is y .

And for the four ways of saying the same thing, we shall have :

Universal	$x \leq y$	$\bar{x} \bar{\leq} \bar{y}$	$x \bar{\vee} \bar{y}$	$\bar{x} \vee y$
Particular	$x \bar{\leq} y$	$\bar{x} < \bar{y}$	$x \vee \bar{y}$	$\bar{x} \bar{\vee} y$

It will be observed that of the universal propositions there are two negative and two affirmative, and that the same is true of particular propositions. The distinction between universal and particular copulas is this: every universal is made up of an odd

number of marks (namely, three), and every particular is made up of an even number of marks (namely, two or four). The rule for the transformation of a statement from one form to another is equally simple: any rotation of a copula necessitates a change of sign in the *subject* (as, $\bar{x} < \bar{y} = x \vee \bar{y}$), and the introduction of a negative sign into the angle of a copula, or the reverse, necessitates a change of sign in both subject and predicate (as, $x \vee \bar{y} = \bar{x} \vee y$). It follows that to do both things at once necessitates a change of sign in the *predicate* only (as, $\bar{x} < \bar{y} = \bar{x} \vee y$). To illustrate these rules farther, let us start, for instance, with $x \vee \bar{y}$, 'No x is non- y '. First put the sign of negation inside the angle, and we get for an equivalent statement (if we change the sign of both subject and predicate) $\bar{x} \vee y$, 'All but non- x is y '. Then rotate this last symbol (at the same time changing the sign of the subject) and we have for an equivalent statement $x \leq y$, 'All x is y '. If, however, we start with $x \vee \bar{y}$, 'No x is non- y ', and change the place of the non-oblique line and at the same time rotate the symbol (and change the sign of the predicate, as the rule requires) we get $x \leq y$, 'All x is y ', the same as before. In applying the rule to particular propositions, it must be observed that a double mark inside an angle, as well as a double negative sign, is the same thing as no mark at all. Start, for instance, with $\bar{x} \vee y$, 'Not all but non- x is y ', and put the sign of negation within the angle, and we get for an equivalent statement (changing the sign of both subject and predicate) $x \vee \bar{y}$, 'Some x is non- y '. Rotate the copula and we get (changing the sign of the subject) $\bar{x} < \bar{y}$, 'Some besides non- x is non- y '. Now take out one of the (double, and therefore invisible) horizontal lines from within this last copula, leaving the other one (and at the same time changing the sign of both subject and predicate) and we get $x \geq y$, 'Not all of x is y '. Otherwise, the change from $\bar{x} \vee y$, with which we started, to $x \geq y$, can be effected at once by a simple rotation (and a consequent change of sign of the subject). The rule may also be expressed thus: Given any proposition in any one of these eight copulas, the same proposition expressed with copula of opposite *quality* must have both subject and predicate of opposite sign; expressed with copula of opposite *symmetry*, it must have subject only of opposite sign. With the symmetrical copulas, subject and predicate can be freely interchanged; with the non-symmetrical copulas, subject and predicate change places upon the condition that their quality also is changed. The simple symmetrical copulas, \vee and $\bar{\vee}$, can be inserted anywhere in a logical product, and the worse looking symmetrical copulas can be inserted anywhere in a logical sum. Thus, $a \bar{\vee} bc = ab \bar{\vee} c$, and $a + bc \vee d$ ('All but a and bc is d ') = $a \vee bc + d$ ('All but a is bc or d ').

IV.

THE LAWS OF THOUGHT.

It is very singular that the form of expression 'Everything is either x or y ' has been treated with such contumely by logicians. It is of common use in daily life. It is necessary to a complete scheme of expression; when it has once been admitted, the problem is readily solved of expressing any proposition whatever, given in terms of S and P , in an exactly equivalent form, with S negative, or with P negative, or with both S and P negative.¹ But, strongest reason of all for not neglecting it, *it is the only form in which one of the Laws of Thought can be expressed*. It is very singular to begin Logic by attributing great importance to the statement that everything is either a or \bar{a} , to make frequent use of it in the most fundamental parts of the subject, and then to utterly ignore it as a form of expression the laws for the use of which need to be plainly set forth. The primary Laws of Thought, rightly considered, are four in number, and they are the matrices, so to speak, for the four forms of expression of Table I. The first is the law of the positive term,

$$a < a.$$

The second is the law of the negative term,

$$\bar{a} < \bar{a}.$$

Either may also be called a law of identity. The other two are the laws which regulate the relations of the negative term and the positive term to each other. They are,

$$a\bar{a} < 0 \text{ and } \infty < a + \bar{a}.$$

The first expresses the fact that a term and its negative have no part in common, and the second that they together occupy the whole field of discourse. The first is usually called the Law of Contradiction. It is a very unfortunate name for it. The terms a and non- a are called contradictories, and the law of contradiction ought to mean the same thing as the law for contradictories,—that is, the law which furnishes the necessary and sufficient condition that two terms should be mutual contradictories. But it takes *both* the above laws to furnish that

¹ It is as important as any other form when it comes to the expression of the compound proposition. Either 'No a is b ' (p) or else 'All c is d ' (q) means that $\infty < p + q$, that is, that all possible cases in the given universe of thought are summed up in the case of no a being b together with the case of all c being d . If it had not been for the accident of Aristotle's having excluded this form of statement from his simple propositions, it would probably never have occurred to Lotze that the Disjunctive Proposition is the expression for some pure and subtle form of knowledge of a superior kind to that which can be expressed in such words as 'If some a is b , then all c is d '.

condition. Suppose I wish to find out whether the colours red and blue on a certain palette are the exact contradictories of each other: I have to convince myself both that they do not overlap and that they together cover the entire palette. It is these two properties together that constitute their contradictoriness. The first of them, which states that a and \bar{a} have nothing in common, I propose to call the Law of *Mutual Exclusion*; it is true that this is too suggestive of 'Excluded Middle,' which is the old name of the other law, but it is too plainly the right name for the thing to be given up on that account. The other property, which states that a and \bar{a} together fill up the whole universe of discourse, I propose to call the Law of *Collective Exhaustion*, or simply of *Exhaustion*. These two names, besides being exactly descriptive of the properties in question, have the great advantage of lending themselves to the formation of adjectives. If two terms have been discovered to be *mutually exclusive* and *exhaustive*, either can be at once set down as the negative of the other. When it comes to the discussion of logical division, these two descriptive epithets are not only indispensable, but actually in use (Bain, *Logic*, pp. 426-428). Why not use the same names for the same properties when those properties first come into notice? The following are, then, the Laws of Thought in tabular form:—

TABLE V.

Laws of Identity, - - -	{ (o) $a < a$. Positive term. (c) $\bar{a} < \bar{a}$. Negative term.
Laws of Co-relation of Positive and Negative Terms.	{ (0) $a\bar{a} < 0$. Mutual Exclusion. (∞) $\infty < a + \bar{a}$. Exhaustion.

(c) is of somewhat, but not entirely, fictitious interest; in propositions in two different terms, the contraposed form does not differ in itself from the original form. Instead of saying that (0) and (∞) are Laws of Thought, and searching for their origin and sanction in various mysterious regions of the mind, it is better to regard them as furnishing together a definition of the negative term. What do we mean by the negative of anything, if we do not mean *all* of that which is *other than* the thing itself?

V.

ON THE PROVING OF RELATED PROPOSITIONS.

One reason why Logic seems to the student so remote from the reasoning of everyday life is that, besides making much ado over some very simple arguments, it does not attempt to grapple at all with others that are equally simple, and equally regular, and of equally frequent occurrence. 'No ripe grapes are sour,' 'No sour grapes are ripe,' 'Nothing which is sour when ripe is a

grape,' are statements which no child would have any trouble in seeing to be equivalent, as matters of fact, and which it would give Logic very little trouble to take account of. If it were not for some unnatural restrictions, such as that subject and predicate must always be considered single and indivisible, a general *aperçu* of the laws of thinking would be more easily got than now, and would cover a larger field. To use a favourite quotation from Hesiod of Professor Sylvester's, "'Tis strange how much greater the part is than the whole!" For instance, every transposition which can be performed upon the proposition limited to two terms is merely a particular case of the one simple rule for transposition in general. What child would hesitate, if asked whether these two propositions are identical or not—'The undevout astronomer is mad,' and 'Every astronomer is either devout or mad'? The identity between $da \prec m$ and $a \prec m + d$ is established at once by a simple reference to the Laws of Thought (or to the Properties of the Negative); since undevout astronomers are mad, and devout ones are devout, they are all either devout or mad; and, contraversely, if all astronomers are devout or mad, since the undevout ones are not devout, they must be mad. The rule is: *Any term which enters the subject as a factor is the same thing as its negative in the predicate as an alternative.* (This is the only transposition possible with this copula, without loss; the factor must be a factor of the whole subject and the alternative must be an alternative by itself.) With the simple proviso that, of the two sentences, 'There are no virtuous kings' and 'No kings are virtuous,' the first shall be taken as the normal form instead of the second, every case of identical propositions (except simple commutations), *whether affirmative or negative, universal or particular*, is a case of this one single rule. When the *last* term is brought away, it must be remembered that the unexpressed part of the subject is not the same as the unexpressed part of the predicate. The proposition $a \prec b$ means in full $\infty a \prec b + 0$, that is, 'Everything which is a is either b or else non-existent'. (No consistent Logic of universal propositions is possible except with the convention that they do not imply the existence of their terms.) If, in this proposition, we bring back the b , we have $ab \prec 0$, if we bring forward the a , we have $\infty \prec \bar{a} + b$, if we make both changes at once we have $\bar{b} \prec \bar{a}$. And for particular propositions the case is exactly the same.

Is it not better for the student to stretch his reasoning powers to the extent of taking in the logical equivalence of the two sentences, 'All ripe grapes are sweet' and 'All grapes are either sweet or else unripe,' and then to have solved all questions of logical equivalence, rather than to spend the time which he must now devote to the discussion of obversion, contraposition and obverted contraposition, each applied in accordance with different rules to each of the four propositions of Aristotle?

VI.—DISCUSSION.

"SOME FUNDAMENTAL ETHICAL CONTROVERSIES."

I.

By Professor T. FOWLER.

In Prof. Sidgwick's article, in the last number of *MIND*, entitled "Some Fundamental Ethical Controversies," he discusses two points, on which, in the Second Part of my *Principles of Morals*, I had expressed divergence from his views on the same subjects as stated in his *Methods of Ethics*. I wish to reply to his criticisms, or rather, in the light of what he has said, to re-state, for the sake of better understanding, my own opinions, as clearly and briefly as possible. And as, on most points of ethical theory, Prof. Sidgwick's views and my own are in general agreement, I need hardly say that my remarks will be free from any hostile bias.

The first and, as I conceive, less important point raised by Prof. Sidgwick refers to a passage in my *Principles of Morals*, pt. ii., ch. 9, pp. 329-31, in which I criticise an argument employed by him, with reference to the Free-Will controversy, in his *Methods of Ethics* (pt. i., ch. 5), to the effect that, at the moment of action, I am conscious of my power to choose between two alternatives. I had supposed that this argument was advanced as an attempt to resolve the antinomy of Free-Will and Determinism, or, at least, as a set-off against the formidable array of cumulative evidence in favour of Determinism which Prof. Sidgwick had just enumerated. But, in *MIND*, he informs his readers that "the argument did not aim at a *theoretical* solution of the difficulty, caused by the conflict between the 'formidable array of cumulative evidence offered for Determinism' and the Libertarian 'affirmation of consciousness in the moment of deliberate action': it aimed merely at a *practical* solution of the difficulty, by showing that for purposes of practical reasoning the two opposed arguments cannot really collide". I must own that I had regarded the argument as of the nature of a practical argument in a theoretical discussion, much like the argument of Bishop Butler (*Analogy*, pt. i., ch. 6) that, whatever their speculative opinions, men always act as if they were free. Thus viewed, it seemed to me, it could not be regarded as a decisive argument that, in the moment of action, a man seems to be conscious of the power of choice between two alternatives, if, in reflecting on the past or forecasting the future, he can regard the same or a similar action as entirely determined by pre-existing

causes. But Prof. Sidgwick's authority as to his own meaning is, of course, decisive. I must, however, plead in extenuation of my misunderstanding, that, without this clue being supplied by the writer, the mistake is one into which, as it seems to me, even a very careful reader may naturally fall. As to the merits of the question, I certainly cannot deny either that, in the moment of deliberate action, we feel ourselves free to choose between different alternatives, or that, in attempting to forecast the future, we usually assume that men will be guided by character, motives and circumstances. Hence, as I have stated in my book (*Principles of Morals*, pt. ii., pp. 331, 337-9), I entirely agree with Prof. Sidgwick on the unimportance of this controversy in its bearings on the regulation of actual conduct. But had, as I erroneously conceived, Prof. Sidgwick meant to appeal to our consciousness of the power of choice in the moment of action as an argument of weight in a theoretical discussion of Determinism, I think it would be at least counterbalanced by the consideration that, when we are not in the situation of having a practical decision forced upon us, but are able coolly to reflect on our past acts, we are generally able, by the exercise of a sufficient power of analysis, to detect the antecedent circumstances of character, motive, &c., on which our volitions depended.

Before dismissing this question, I may, perhaps, be allowed to remove a possible misapprehension as to my own views, which might be caused both by Prof. Sidgwick's article and by what I have myself said in the previous paragraph. My own ultimate conclusions are not in favour of the Determinist position. But, while recognising the unanswerable character of the arguments for the Determinist hypothesis, so long as we confine ourselves to the analysis of volitions, I equally recognise, to quote my own words (*Principles of Morals*, pt. ii., p. 336), that these arguments are "confronted by facts of almost hourly occurrence in the lives of us all which, on the hypothesis of their validity, seem to be inexplicable. Why should we praise or blame others,—why, on reflection, should we approve or disapprove of our own acts and dispositions,—if we regard both others and ourselves as merely and exclusively determined by antecedent circumstances? Surely both praise and blame, self-approbation and self-disapprobation, imply that the objects of them had the power of acting otherwise than they did, and, if of acting otherwise than they did, of being otherwise than they were. And, however it may be with regard to our praise and blame of others, which may possibly, in some cases, be modified, though they are certainly never extinguished, by a growing sense of the difficulties of conduct; yet it undoubtedly seems to be the fact that, with increasing knowledge and experience, both of ourselves and of the world outside us, we do not become less, but more, sensitive in the feelings and judgments with which, on reflection, we regard our own acts and habits. But, if these acts and habits were predetermined by the

concurrence of external and internal conditions, they surely were inevitable ; and, if inevitable, how can they be the proper objects of approbation or disapprobation ?" Here, it seems to me, in the present or any probable state of our knowledge, the question must be left. We may, indeed, conjecture that the Self, operating by laws of its own, unknown to us, has some power of self-determination, independently of circumstances ; but, after all, this is merely a hypothesis, not only unsupported by positive proof, but, so far as we can foresee, admitting of no verification.

The more important point raised by Prof. Sidgwick, and that on which there appears to be a real difference between him and myself, is a question connected with the fundamental conceptions of 'right' and 'ought'. He regards these notions as "ultimate and unanalysable". On the other hand, I have expressly stated (*Principles of Morals*, pt. ii., p. 227) that I maintain the idea of right to be "explicable by the idea of good," and the word 'ought'—at least, in one of its applications—(I shall speak of another application presently), is, in the case of human agents, simply the verb corresponding with the substantive 'right'. As I seem to have misunderstood the exact position taken by Prof. Sidgwick under the former head, I think he may have similarly failed to perceive the exact position assumed by myself on the present question. To save space—and, if possible, to prevent any further controversy on a subject on which I can foresee that we shall probably not arrive at an agreement—I will simply content myself with stating here, as briefly and clearly as I can, my own conception of the proper relation subsisting between what may be called the fundamental ethical ideas—those of 'right,' 'good' and 'ought' (or 'obligation'). When we do a right act, or do as we ought, as, for example, when we tell the truth, or pay our debts, or practise temperance, we are, in the two former cases, preferring the greater good of others to the (often imaginary) lesser good of ourselves, in the last case, the greater good of ourselves to the (often imaginary) lesser good of ourselves. In all these and similar cases we always make conscious choice of the greater good or lesser evil. Thus, the acts of which we approve, which we ought to do, which we denominate right, fall under the more general conception of good acts—or, in other words, they are explicable by the idea of good. One great advantage of their being thus represented is that good and evil admit of degrees, and of comparison with one another, and are thus much more easily applicable to the measure of concrete actions than are more absolute conceptions, like right and wrong. But it may be said that, according to this mode of viewing virtuous acts, veracity, honesty, temperance, and the like, are only means towards the attainment of a further end, the general good of ourselves, or of society, or of both. But now arises the question whether the good is itself an ultimate idea, or whether it admits of being explained by reference to some still

more general conception ; and, again, whether we may not properly say that it is right, that we ought, that we are under an obligation, to pursue the greatest good, or to prefer the greater to the lesser good. With regard to the first question, I may reply, as I have done in my *Principles of Morals* (pt. ii., p. 264), that "the good of man, as a whole, may be conceived of as the development of the various parts of his nature in harmony with one another, and with the social and material medium in which he exists". And, in particular cases, anything which promotes this development is good, anything which retards it or thwarts it is evil. Thus, the idea of good is carried still one step further back, and made dependent on our conception of the constitution of human nature. And beyond this step it would appear as if we cannot go, unless we quit the region of ascertainable fact, and indulge in speculations on the constitution and purposes of the Universe. But it remains to be asked whether the ideas of 'right,' 'ought,' 'obligation,' have any application to this connexion between the conception of 'good' and that of 'human nature'. Can we say that it is right, that we ought, or that we are under any obligation to pursue the greatest good, or to choose good rather than evil? I think that we are undoubtedly justified in using all these expressions, though, as the word 'right' is here used in a somewhat unusual sense, it seems preferable to employ one of the other equivalents, appropriating the term 'right' to specific acts or classes of actions, which are only a means to the general good. But we now use these terms in a different sense, or rather in a different application. They were previously used in relation to the intermediate conception of 'good'. They are now used in relation to the ultimate conception of human nature itself, whose constitution, development and tendencies thus become, while we confine ourselves to the sphere of verifiable experience, the ultimate source of moral obligation. The ultimate obligation to morality then seems to me to reside, not in any abstract and unanalysable idea of 'ought,' 'right' or 'duty,' but in the very make and fashion of human nature, in the complexus of the several feelings, co-ordinated by the reason, and issuing in what we call the moral faculty. We think and feel that we 'ought' or 'are obliged' to do that to which our nature, as a whole, or the moral faculty, as its resultant and spokesman, prompts us ; and to say that we 'ought' or 'are obliged' to follow a certain course of action is the same as to say that it is imposed upon us by our nature, not, indeed, in its original condition, but in the stage of development to which it has now attained. Between specific courses of action and the ultimate obligation there is usually, in the case of reflective men, interpolated the conception of the greater good or lesser evil, but, when we come to ask why we should act in accordance with this conception, the only answer, it seems to me, which a moralist, as such, can give, is that we are impelled

(though, of course, not irresistibly impelled) to act thus by the very constitution of our nature. It is this theory which I have attempted to sketch in pt. ii. of my *Principles of Morals*, and specially in the 5th and 6th chapters. The examination of human nature, its various principles, developments and capacities, in their relation to one another, and to the material and social medium by which they are moulded, and which, in turn, they mould, or, in other words, the study of the human mind, and of the growth of man and society, alone seems to me to supply the material out of which an intelligible system of morals can be constructed, adequate to the practical needs of men, and capable of carrying equal conviction with other branches of knowledge.

II.

By L. A. SELBY-BIGGE.

In the last number of *MIND*, Prof. Sidgwick has done a thing for which, I am sure, many of his readers and admirers will be very grateful. He has taken three of his principal positions out of their original setting, and re-stated them simply and plainly to be judged on their own merits. It is much to be wished that other people who write large books would do the same thing; for one is often afraid of handling by itself any single position taken up in a large book, lest one should be doing the writer an injustice by viewing it out of relation to the system or argument of which it is a part or the purpose with a view to which it is maintained. Of the *Methods of Ethics* it is especially hard to be critical: its very virtues have made it peculiarly difficult to grasp, or, at least, to judge; there are so many candid admissions, so many able and eloquent statements of the other side, so little suppression of material facts, that many readers have professed respectful failure to entirely understand the author's views sooner than commit themselves to a treatment of it which they feel would be very possibly unfair and very probably incomplete. Few who have read the book have not learnt much from it; but, I think, there are also few who are quite certain what it all comes to. In *MIND*, however, Prof. Sidgwick has selected certain articles from his stock and placed them fairly on the counter by themselves, and asks us squarely, 'What is it you don't like in them, and what is it you don't understand?' I am sure I shall only be doing what Prof. Sidgwick wants if I try to answer his question as squarely as it is asked, confining myself to the first point on which he challenges the world—the Freedom of the Will.

Before I proceed to my special objections to Prof. Sidgwick's theory, I ought to confess that I do not quite understand what he means by a practical solution, which is all he claims to have

attained. When I talk of a practical solution I generally think of a solution '*per ambulationem simplicem*,' but I do not think that this is what Prof. Sidgwick means by a practical solution of the difficulties connected with the assertion of the freedom of the will. Does he mean such a solution as shall be sufficient for practical purposes and the conduct of life; a solution which shall protect us from being hampered and our actions paralysed, though not satisfying our intellectual curiosity; a solution which shall allow those whose lives have been disturbed by the speculative contradictions to go on doing as they used to do? But he seems hardly to think such a solution necessary—indeed, he tempts us to think that his practical solution is, that none is required, because out of doors no one is in the least troubled by the difficulties which assail him in his study, nor does anyone act in any way differently when he substitutes the creed of the Libertarian for that of the Determinist, or conversely. But he also, I believe, reaches another solution which, though not complete, is of dignity enough to be called theoretical. It does not show the antinomy between Necessity and Freedom to be itself necessary, but it does show that, though actual and perpetual, it does not produce a deadlock, because to each belongs a separate province: in other words, that, though the same action is necessary and free, it is so from different points of view. This solution, of course, stops short of showing why these two separate points of view exist, and so, I suppose, it is incomplete; but why it should be denied the name theoretical I cannot quite see. In this case, I am inclined to trace it to a general tendency in the author to undervalue the contributions of Kant to Ethics—a tendency (unconscious, I am sure) which shows itself further in a lack of precision in defining the limits of the two provinces of necessity and freedom, and also in an unnecessary exaggeration of the contradiction between them. Of this I shall speak again later.

I. My special objections are, first, to his treatment of the point at issue between Determinists and Libertarians as of no practical importance—that is, to his assertion that, except in one special case in which theological considerations are introduced, it will make no difference in our conduct whether we adopt one view or the other.

(a) In support of this position, he shows that, though the adoption of Libertarian views may throw some general doubt on the accuracy of the calculations we make about future actions, whether our own or those of others, and about means to ends, still it cannot in any way modify the details of those calculations: our confidence in them may be a little weaker, but they will remain the same. Now, with this statement I have no fault to find, except that Prof. Sidgwick understands by the Libertarian view the vulgar opinion that our actions are determined by no law at all, a view which stands contradictorily opposed to that of

the Determinist; whereas by the Libertarian view I understand the opinion that our actions are determined by moral laws, thus considerably reducing the antithesis between Determinism and Libertarianism. According to the latter acceptance of the term Libertarianism, its adoption could neither modify nor cast general doubt upon our calculations of future events, because actions, as events, are not in any way contemplated by it. However, I do not wish to press this, because I believe Prof. Sidgwick is not really quite sure in which sense he understands and accepts Libertarianism: indeed, it is this uncertainty, which I believe I can detect in his writings, which is the main article in my objections to his position.

(b) He shows that Determinism is always actually held in conjunction with Libertarianism, and that the latter, to a very great extent, depends on the former and uses its assumptions. To this, again, I have no objection, except the rather fundamental one just mentioned.

(c) But Prof. Sidgwick does not show that the *substitution* of Determinism for Libertarianism would have no considerable practical effects, and that is the point which I think he is bound to prove, if he is to justify his position. The fact that ordinary people do generally effect a compromise and establish a *modus vivendi* between two apparently contradictory theories, does not show that it is of no importance whether you adopt one to the exclusion of the other. It shows that you can get on by adopting both, simultaneously or alternately; but it does not show that you can get on equally well by adopting either. The fact that the happy inconsistency of the Determinist counteracts—and, indeed, conceals—the legitimate consequences of his theory, and, further, renders it harmless and even useful, is no reason why we should cease to combat it in works devoted to the theory of Ethics. The fact that every Determinist is also a Libertarian only shows that he does not carry out his theory, not that his theory involves no practically-important consequences: a theory may have most important consequences, even though no one practises it. The fact that those consequences are nowhere evident in private or public life may be a reason why the statesman should treat the theory lightly, but it is no reason why the moralist should do likewise. Of course, I should not think of denying that it is "quite possible to compose a treatise on Ethics which should completely ignore the Free-Will controversy" (*M. E.*, bk. i., chap. 5, § 1); but, as Prof. Sidgwick seems to admit (*ib.*, § 2), the meaning which you give, in your treatise, to "'ought,' 'responsibility' and similar terms" will clearly indicate which side you take in the controversy: you may ignore the conflict, but you will only be able to do so by assuming that one side or the other is decisively victorious.

But Prof. Sidgwick, in *MIND*, still more plainly admits the point for which I am contending. He says (No. 56, p. 477):—

"I am quite willing to admit that this conviction *may* be illusory : that, if I knew my own nature, I *might* see it to be predetermined that, being so constituted, and in such circumstances, I should act on the occasion in question contrary to my rational judgment. But I cannot conceive myself seeing this, without at the same time conceiving my whole conception of what I now call 'my' action fundamentally altered : I cannot conceive that, if I contemplated the actions of my organism in this light, I should refer them to my 'self'—*i.e.*, to the conscious mind so contemplating, in the sense in which I now refer them."

That is to say, if I thoroughly applied the Determinist theory without any admixture of the Libertarian, I should no longer regard myself as responsible for my actions in the same way as I do now ; I should no longer use 'ought' and 'desert' except in new significations (cp. *M. E.*, i. 5, § 2). Surely Prof. Sidgwick would not say that such a total alteration of the relations between my 'self' and my actions would not be a grave practical matter. I am obliged to say '*would not be*,' because I agree with Prof. Sidgwick that no one does apply the Determinist view rigidly and consistently, and that "I must use in thinking about action the only conception of human volition that is now possible to me . and this is strictly incompatible with the conception of my choice between rational judgment and irrational inclination as predetermined "

Prof. Sidgwick does, however, advance one definite argument in support of his position. He says (No. 56, p. 476) :—"I do not think that any determinist will argue that his conclusion either ought to have or ordinarily does have this paralysing effect on the practical reason " ; *i.e.*, that it does lead men "to abstain from the effort to act rationally, and consciously surrender themselves to the play of mere impulse ". To this I reply, that we are agreed that it never does have this paralysing effect, but that, if we wanted an assertion that it ought to have it, we certainly should not go to the Determinist for it. The Determinist is not such a fool as to admit that his theory cuts at the root of all morality, and is hopelessly paradoxical. As we all know, he is much more alive to his own interest, and protests, on the contrary, that his view is indispensable to morality. In saying this, I do not wish to accuse the ordinary Determinist of dishonesty ; I only wish to point out that he is probably made of the same stuff as the Libertarian, and is no more than his opponent inclined to regard suicide by paradox as a duty.

II. Having now dealt with the first part of Prof. Sidgwick's "practical solution," *viz.*, that it does not matter which view we take, I come to the second part, *viz.*, that we all of us do and must use both principles, but that it is from different points of view that we do so. With this solution, so far as it goes, I entirely agree. But, in Prof Sidgwick's statement of it, I find a certain want of clearness, and even a certain amount of prejudice, sufficient to make me doubt whether I really hold the same solution as he does.

(a) In *MIND*, p. 475, Prof. Sidgwick says :—" When we are ascertaining . . . what choice it is reasonable to make between two alternatives of *present* conduct, it is as impossible for us to use Determinist conceptions as it is impossible for us to use Libertarian conceptions when we are endeavouring to forecast future conduct". This is slightly misleading, for it suggests that the two sets of conceptions do not collide only because the one applies to the future, and the other to the present. (The italics in the quotation are Prof. Sidgwick's own.) Of course, Prof. Sidgwick would admit that it is quite as possible to inquire what course of action *will be* or *was* reasonable, as what course *is* reasonable. So the antithesis might be better stated thus : ' When we ask what will happen in the future, we use determinist conceptions ; when we ask what is reasonable, *i.e.*, what ought to happen in the future, we use libertarian conceptions'. Now this is exactly what I am contending for, and so Prof. Sidgwick may not unreasonably ask : ' Why then are you not contented, since this is just what I mean?' Unfortunately, I am still not quite sure that is what he means, though, perhaps, after what he said long ago (*M. E.*, i. 5, § 2), such uncertainty may seem to him sheer ingratitude.

(b) It is not really this, for in *MIND*, p. 479, I find him saying :—" I have restricted my consideration to the choice between the alternatives of ' rational ' and ' irrational ' conduct. It is, I conceive, this alone that concerns us, from an ethical point of view, not the possibility of merely indeterminate choice—of what Green calls an ' arbitrary freak of unmotivated willing '."

Now I am not sure of the meaning of this sentence. Does Prof. Sidgwick mean that freedom is to be affirmed only in the case of choice between alternatives, and not in the case of volition where no alternatives are suggested? Or does he mean that freedom is only to be affirmed where one of the alternatives is conceived of rational or right? It is to be observed that Prof. Sidgwick " restricts " himself to the latter case as being the only one of ethical importance, which seems to imply that he could give his argument a wider application, and could use his evidence to prove more, if only he chose to do so. In *Methods of Ethics* (i. 5, § 3) he seems to me to combine both positions. He contrasts the " cumulative evidence " for Determinism with " the immediate affirmation of consciousness in the moment of deliberate action . . . that I can now choose to do " what I now conceive as right or reasonable, " however strong may be my inclination to act unreasonably ". It is just this " immediate affirmation of consciousness " which offends me, though, likely enough, I have already swallowed many camels. Is not this " immediate affirmation " equally present wherever there are alternatives of any kind, whether conceived of as good, bad or indifferent? Whenever I stop to reflect on any course of action, does not my " consciousness " always affirm my ability to choose it? And is

not this affirmation perilously like the product of an illusory mental experiment? Is it not just this evidence which Determinists have found it easiest to explain away? I should be very sorry to leave my Libertarian belief to rest on such a very small base, and it is because Prof. Sidgwick deliberately prefers the narrower to the wider base that I cannot accept him as my champion. Or is it that, while accepting the Kantian conclusion, he is unwilling to accept the Kantian evidence, and so tries to find some new evidence which shall save him from the necessity of treading in the Kantian footsteps?

(c) The last quotation from the *Methods of Ethics* contains a point which I think well deserves attention, *viz.*, the alleged contrast between the cumulative evidence for Determinism and the solitary piece of immediate evidence for Libertarianism. Prof. Sidgwick gives some grounds for supposing that by this "cumulative evidence" he only means that the sphere which has been subjected to laws of nature has been continually widening; that laws have been discovered for phenomena previously regarded as capricious or fortuitous, while no one has tried to extend the limits within which Freedom obtains. But he seems also to imply that there is a real difference not only of quantity but also of quality in the evidence for the two positions. I do not like to express a general philosophical opinion very positively without drawing trenches of various kinds round me, but I am inclined to maintain this—that Liberty and Necessity were once and for all melted in the same pot by Hume, whose sagacity in this matter is beyond all praise; that since then their interests cannot possibly be divided; that if they are ever to be restored to us it must be by the same method. I should also be inclined to maintain that for neither Liberty nor Necessity is there the slightest direct or immediate evidence, but that for both of them there is the strongest possible indirect. Necessity is vindicated solely by the fact that all men make use of the conceptions of reality and illusion, truth and falsehood: Freedom, solely by the fact that all men make use of the conceptions of good and bad, ought and ought-not, right and wrong. Neither necessity nor freedom are 'empirical notions,' though they are abundantly vindicated by the fact that they are essential to and implied in those conceptions without which we should be neither rational nor moral. Whether freedom is or is not the *ratio essendi* of the moral law, the moral law seems to me most certainly the *ratio cognoscendi* of freedom. That it does not seem to Prof. Sidgwick so certain is perhaps due to his appreciation of the clearness and sufficiency, for practical purposes, of the meaning given to the moral law by the Determinists, an appreciation producing forgetfulness of the fact that, as so interpreted, the moral law is not after all what ordinary people mean by the moral law (cp. *M. E.*, i. 5, § 2).

III. I am tempted in conclusion to say a few general words in

defence of Kant, undeterred by the fear of appearing old-fashioned or a barren formalist. I think that in this matter and all through the *Methods of Ethics* Kant has exercised a distinctly repellent influence over Prof. Sidgwick, and this repulsion is easily intelligible. Kant made a great deal more of the connexion between the moral law and freedom than he was warranted in doing, and his failure in developing this connexion is obvious. But I do not think that Prof. Sidgwick is the man who ought to be offended at this; he has himself so admirably distinguished between the two different questions "What ought I to do?" and "What is the meaning of 'I ought'?" that he should not be hard on Kant for having confused them, or rather for having thought that an inquiry into the latter question would enable him also to answer the former. Kant's merit in having elucidated the meaning of Duty is surely so conspicuous that we can afford to forget his attempt to deduce the duties. I do not claim for Kant in any way that his connexion of free with rational or disinterested action (though I do not interpret 'rational' in the same sense as Prof. Sidgwick) adds anything valuable to his theory, nor that his detailed explanation of Freedom is any more successful than that latterly attempted by Prof. Green, who seems to me to have been very near asserting that "psychological Freedom" which Kant made such fun of; but I do hold that in his definite assertion that the moral law is the sole and sufficient evidence for Freedom he was on ground a great deal surer than that on which the ordinary Determinist so confidently stands.

Perhaps it is this same repulsion which leads Prof. Sidgwick to underestimate the practical importance of the question. If it is by a keen sense of the grotesqueness of disputation on the freedom of the will that he is led to minimise its importance, I can sympathise; from the disputations of philosophers grotesqueness is seldom far distant, and we ought perhaps to be more afraid of it than we are. Of course, too, from one point of view no speculative discussion, and no speculative solution, is of practical importance, and this is especially true in Ethics, and in Ethics especially true of this dispute, where it is admitted by the one party that all men think themselves free, and by the other that if they think themselves free this is quite sufficient to render the moral law binding on them. But if speculative Ethics is of importance, and I believe it to be important even though we do not go to it for a rule of life, then in it I believe the question of the Freedom of the Will to be of primary importance.

VII.—CRITICAL NOTICES.

First and Fundamental Truths, being a Treatise on Metaphysics.

By JAMES MCCOSH, D.D., LL.D., Litt.D., &c. London: Macmillan & Co., 1889. Pp. x., 360.

From his former works the veteran Dr. McCosh is known as an independent disciple of Hamilton and a supporter of the doctrine of Natural Dualism. In the present volume he expounds his Realistic Philosophy. After a brief introduction defining Metaphysics as "the Science of first and fundamental Truths," we find the subject distributed into three parts, the first of which contains a general view of primitive principles. Part ii. enters upon the particular examination of these principles, and is subdivided into four books, dealing with primitive Cognitions, primitive Beliefs, primitive Judgments, and our intuitive moral Convictions. Part iii., on Intuitive Principles and the Sciences, comprises four more books, of which the first deals with Metaphysics and discusses the relation of Fundamental Truth to Evolution; the second, on Gnosiology, treats of the origin and limits of knowledge; the third, on Ontology, disposes of Idealism and Scepticism; and the last exhibits the metaphysical principles that are involved in the practical affairs of life, in Physics, in Mathematics, in Formal Logic, in Ethics and in Theology. Besides all this the reader will find in small type at the end of several chapters extensive notes historical and critical. Such an encyclopædia of philosophy cannot, of course, be reviewed in detail: it must suffice to consider the author's account of first principles and his treatment of one or two crucial problems.

Whilst the greater part of our knowledge, says Dr. McCosh, is got by induction, "there are Objects, there are Truths, that are perceived directly and immediately". The powers percipient of these objects and truths are called Intuitive, and the truths they discover are Primitive and Fundamental. "Our Intuitions look to Single Objects and not to abstract or general notions" (p. 7), not, for example, to an idea of Space or of Causation, but to a particular body in space, or to a particular effect, whence by a subsequent intellectual process the general ideas are formed. Intuitions imply laws or powers in the mind from which they proceed (p. 12); and such laws or latent principles act, as physical laws do, at all times, and whether we perceive them or not. Now if we rightly generalise our Intuitions we obtain in an explicit form, corresponding to the latent principles of our nature, philosophic principles, which may be either Axioms or Maxims, such as the axioms of Euclid and the Decalogue of Moses. Latent Principles, Intuitions, Philosophic Principles, these three are "only diverse aspects of the fundamental powers

of human intelligence. They constitute a philosophic trinity, three in one and one in three" (p. 14); or again (to modify in a peculiar manner an old image) they are "three sides of the shield".

It becomes therefore very desirable to determine the tests of Intuitive Truths; and Dr. McCosh finds that these are also three: first Self-Evidence, and (though of less value) secondly and thirdly, Necessity and Catholicity. But these three tests, it must be carefully observed, apply to Intuitions "only under the aspect of Perceptions" (p. 18). The latent principles are "not under the view of consciousness," and of course cannot be self-evident; and "a process of generalisation is implied in all axioms, and this process is not intuitive". We are thus brought to what is really the most serious question: How do we know when axioms have been rightly generalised? That having raised this question the author could possibly leave it unanswered never occurred to me. Page after page, chapter after chapter, book after book, part after part, I plodded on, eager but at last desperate, when on reaching the end I had to confess that if the volume contained any solution of its most important problem it had escaped my observation. Had some nefarious binder omitted the most precious sheet? No: the pagination was consecutive. On the whole it seems probable that this is Dr. McCosh's secret, which he is reluctant to reveal for fear of losing his monopoly in the manufacture of sound morals and metaphysics.

Let us, however, consider one or two of his results. At p. 68 Dr. McCosh takes up the question of the Independent Existence of Objects. "In our primitive cognitions," he says, "we know Objects as having an Existence Independent of the Contemplative Mind. We know the object as separate from ourselves. We do not create it when we perceive it, nor does it cease to exist because we cease to contemplate it." "All this is involved in our very cognition of the object, and he who would deny this is setting aside our very primitive knowledge." Again: "In our primitive cognition of body there is involved a knowledge of Outness or Externality. We know the object perceived, be it the organism or the object affecting the organism, as not in the mind, but out of the mind." Where then (one may ask) is the 'mind' that the object should be 'out of it'? 'That an object is out of the mind,' so far from being a primitive cognition, seems to me to be a contradiction in terms. At p. 74, criticising Ferrier's doctrine that the object of knowledge is always "object *plus* subject," Dr. McCosh says: "No doubt we always know self at the same time that we know an external object by sense-perception, but we know the external object as separate from and independent of self. We might as well deny that we know the object at all as deny that we know it to have an existence distinct from self." Now this last clause is true: we do know the object as *distinct* from self; but that is a very different thing from knowing it as

independent, separate and external. Indeed, it implies the opposite: to know the object as distinct is to know it as in relation to self, and, therefore, not separate, not independent, not external. But at p. 295 he has the most extraordinary Intuition ever registered; for he says that both by consciousness and perception "we know self and not-self as having an existence independent of the mind contemplating them". Such experiences are only to be had in the hypnotic state.

At p. 102, Dr. McCosh begins to give us his Intuitions about Power. "In all knowledge of substance there is involved knowledge of Power. We cannot know self, or the mind that knows, except as active, that is, exerting power or being affected. Nor can we know material objects except as exercising or suffering influence,—that is, a certain kind of power." This position is supported by no argument; we are to take the author's word for it. It is true that he afterwards gives some of Berkeley's objections to the doctrine (p. 108), but with no reasoned rejoinders: "Berkeley is wrong," he says. At p. 208 the same procedure serves for Causation: "There is Power in the Cause or Cause to produce the effect. We have seen that we know substances, mind and body, as having power." Then: "We see the error of Hume, who makes causation mere invariable antecedence and consequence; and of J. S. Mill, who makes it unconditional sequence. It is not the invariable or unconditional succession which constitutes causation, but it is the power in the Cause which produces the invariable succession." How many legions ought a man to have at his back when he ventures to write in this way?

The truth is that Dr. McCosh has, apparently, never understood the meaning of metaphysical analysis. That a vague irreflective belief in Externality or Power is not to be trusted, if on analysis we cannot find that such things are directly known, whilst we can show that the belief in them would have arisen even if the things have no existence—this argument, the burden of English metaphysics for two hundred years, which our author must have scanned on a thousand printed pages, seems never to have penetrated beyond his retina. Nay, in such a simple matter of logical analysis as the distinction between Real and Verbal propositions, though he is aware of it, and states it somewhat ostentatiously, yet he betrays no notion of its philosophic significance. He cites Real and Verbal propositions indiscriminately as examples of Primitive Judgments; and at p. 276, contrasting Axioms with Laws of Observation, he says: "The latter kind of laws may or may not hold good beyond the limits of experience". But "it is true over all our earth, and must be true in all other worlds as well as in this, that cruelty is a sin".

To do justice to Dr. McCosh's position in Morals and Metaphysics it is necessary, in conclusion, to signalise his method; which, though ancient enough, is hitherto unnamed and un-

acknowledged. We have all heard of the Dialectic Method, of the Empirical, the Sceptical, the Critical, and so forth. Now, our author's is the Assertory Method. It is indeed no new one: all philosophers have resorted to it when other methods failed them; but no one else has worked it so thoroughly and confidently. For others Assertion is a city of refuge, whither they betake themselves when persecuted elsewhere; for him it is an abiding city, where he dwells comfortably and securely, as in the shelter of a great rock, amidst this weary land of doubt and disputation.

CARVETH READ.

System der Philosophie. Von WILHELM WUNDT. Leipzig: W. Engelmann, 1889. Pp. x., 669.

Prof. Wundt's elaborate and imposing *System of Philosophy* contains in itself, in some sense, the results of his whole past work, both in the positive fields of inquiry with which his name is usually associated and in the more strictly philosophic field. Having already set forth the scientific basis of his thought and a part of the philosophical doctrine in which it has resulted, he now appears as a constructive thinker who seeks to develop that thought in its systematic completeness. The metaphysical, or ontological, part of philosophy, in his view, is its central part; and with this the sciences of nature as well as of mind are to be brought into relation, and thus constituted, as far as is possible, "philosophical sciences". The means of bringing them into this relation is to be found in the theory of knowledge as it has been worked out in modern times. Finally, the philosophic view of the world and of life is to satisfy "the needs of feeling" as well as "the demands of understanding".

From this general statement of his aim it may be seen that Prof. Wundt comes forward in his present work as a representative of "scientific philosophy," yet as one who would not limit the scope of philosophic thought to the service of science. Passages may indeed be found that seem to reduce philosophy to a kind of *ancilla scientiæ*; but on the whole the better conception of "scientific philosophy" is maintained which makes science the preliminary discipline and material, and philosophy the end. Perhaps science, viewed in this way, does not even get all its due influence. For, apart from his experimentalising, it cannot be said that Prof. Wundt is a thinker of an eminently positive cast. Beyond the region of experimental psychology he sometimes appears to renounce all scientific guidance—as in one at least of the "laws" formulated in his *Ethik*. Unless we look upon it as a sort of compensation to himself for the peculiar objectivity and exactitude of his work in physiological psychology, it seems most plausible to connect this feature of Prof. Wundt's philosophy with his neglect of English thought. That we need

expect no particular appreciation of English thought from Prof. Wundt was made clear enough by his *Ethik*, and it is equally clear in the *System*. At his first reference to the characteristics of English philosophy (pp. 17-18) he falls into self-contradiction. Referring to the praise that has been given to English Experimentalism for being more circumspect in relation to science than Continental systems of metaphysics, determined, as these have usually been, by the form of some particular science to the exclusion of the rest, he remarks that this praise is not quite justified, for two reasons: (1) English experimental philosophy has been determined in a one-sided way by natural science, and has therefore a "naturalistic" character; (2) It has regarded as its chief problem the application of psychology to the theory of knowledge and to ethics, and is consequently in its most important results only "applied psychology". Yet Prof. Wundt himself recognises a fundamental division of the natural sciences from the sciences of mind (pp. 28-9). How then, on his own principle of division, can English philosophy be said to be determined in a one-sided way by natural science if its most important part consists in the application of mental science?

Prof. Wundt's work, however, is essentially constructive, not critical, and it is above all his systematic construction that we must try to estimate. It will be best to begin by a statement of what, in general principle, can be accepted almost without qualification. There is, first, his view of the relation between philosophy and science. Philosophy, he shows, can no longer pretend to develop everything from within itself,—to arrive at the results of special science *a priori*, for example,—but must start from knowledge as scientifically elaborated. Originally a general view of the whole of knowledge, from which the special sciences detached themselves and became independent, it must henceforth be a general view of the whole of knowledge, supported on the special sciences as a basis. Now as formerly special science occupies an intermediate position between philosophy and ordinary unscientific knowledge. The difference is that in working towards a general theory of the universe the thinker must now pass from science to philosophy, instead of, as formerly he was supposed in principle to do, from philosophy to science. Thus he will avoid that exclusive determination of his thought by the form of some predominant science which was inevitable so long as philosophy, after the constitution of the special sciences, tried in principle to maintain itself wholly independent.

This, as might be shown by comparison with the views of other scientific thinkers, is the general position to which the modern conception of scientific philosophy is tending. How it needs interpretation by recognition of the definitively idealistic character of modern philosophy, Prof. Wundt very well shows in many passages of his *System*. The nature of reality, as distin-

guished from the mode of its evolution, he points out, can only be determined on the ground of the mental sciences, not on the ground of the natural sciences. Not only the results of the natural sciences, but also the cosmological speculations of scientific philosophy, in order to acquire genuine philosophical significance, have to be brought into relation with an ontological doctrine based on the results of mental science. It cannot be said, indeed, that Prof. Wundt holds this idealistic view quite consistently. At p. 146, for example, he prefers Locke's theory of the external world to Berkeley's; remarking that Locke, when he placed the primary qualities of matter in the object, had the men of science on his side, whereas Berkeley's complete dismissal of "objectivity" was an act of subjective arbitrariness justified by nothing. This evidently detracts somewhat from the consistency of Prof. Wundt's idealism; and his theory of scientific knowledge is undoubtedly semi-realistic. It must be admitted, however, that when he comes to ontological speculation, idealism is at length consistently adopted. This is a great merit, even if nothing in Prof. Wundt's ontology should turn out to be acceptable but the general principle.

In treating of the method by which general philosophical conceptions are to be attained, Prof. Wundt again is not perfectly consistent with himself; but so far as he sets forth a consistent view of method the double objection may be taken that he makes philosophy neither sufficiently disinterested nor sufficiently practical. Philosophy, he holds, ought to satisfy both the understanding and the moral feelings. His way of providing satisfaction for both is to make ethics a purely theoretical science and to introduce practical postulates into metaphysics. The philosopher who treats of morals or law or religion is not to attempt to influence practice. His proper business is simply to comprehend. Any influence he may exercise on life must be indirect, through the special science which treats of his particular subject-matter. The speculations of the philosophy of law, for example, may come to influence practice by being taken up into the science of jurisprudence; the philosophy of religion may influence religious life by making suggestions that get incorporated with scientific theology—which, if it has not become, is now in process of becoming a special science like any other: but the philosophies of law and religion must renounce all attempt at direct guidance of common thought and practice. The business of the ethical philosopher, again, is not to lay down ethical rules, but to show how they arise. Philosophy gives satisfaction to the moral and religious feelings by explaining their origin and by placing them, theoretically, in relation to all the other interests of life. In metaphysics, on the other hand, beliefs required by ethical needs are to be asserted as postulates. Only with the aid of such postulates or "transcendent pre-suppositions" is a satisfactory doctrine of the "world-ground" attainable. Metaphysical

philosophy, Prof. Wundt insists, has always had for one of its problems to reconcile theoretical with practical interests. The beginning of philosophy, in its distinction from mythology, was no doubt marked by the separation of the intellectual from the religious interest. The religious interest, nevertheless, has always continued to be one of the motives of philosophising, just as the intellectual interest has had its share in determining the form of myths. Nearly all the great historical philosophies have a religious element ; the exceptions being such systems as those of Democritus and Epicurus, whose theories, having given no satisfaction to the desire for reconciling purely theoretical with practical interests, but having regarded solely the need of intellectual explanation, were for long expelled from philosophy. Afterwards, by an appropriate act of historical justice, the atomic hypotheses of ancient materialism were renewed by special science with a view to those intellectual interests from which they first had their origin. For special science is really, as philosophy is not, purely intellectual.

To Prof. Wundt's theory of ethics it will be necessary to return. In this place some remarks may be offered on his view of method in metaphysics. The ground on which he would maintain his position appears to be this: Only special science and materialistic philosophy are purely intellectual in their outlook on the universe ; but special science is not philosophy and materialism is an inadequate philosophy ; if then we would be philosophical in the full sense of the term our outlook must not be purely intellectual. To this it may be replied that, while materialism is to a considerable extent entitled to the praise of having been disinterestedly intellectual, it is not the materialistic systems alone that are entitled to this praise. Spinoza's view of the universe is not less disinterested than that of the most consistent materialist. Indeed Spinozism has been taken to be the typical doctrine of purely speculative metaphysics uninfluenced by practical considerations. Prof. Wundt would object that in Spinoza's theoretical philosophy there is a "religious" element, that indeed the Spinozistic doctrine of substance had its origin in "religious" motives. He does not, however, make it very clear what precisely he takes this element or these motives to be. The point, when method is in question, is whether Spinoza's theoretical view of the laws of things was modified by hopes and fears. If not, then to call it religious is not to the point. Materialism, we may agree with Prof. Wundt, in spite of its merits is a truncated philosophy. But is not the idealistic criticism that proves it to be so as purely intellectual as anything can be? And is it not to this criticism that Prof. Wundt has finally to appeal in order to show the inadequacy of materialism? If it were not that materialism is shown to be inadequate by the theory of knowledge, his whole argument would be, of course, nothing but a *petitio principii*.

When Prof. Wundt proceeds to the actual building up of his system, however, it is not his doctrine of method that first makes itself felt. The first doctrine of which we perceive the influence is the author's characteristic theory of Apperception or Mental Attention. The question as to how far this theory is supported by experimental psychology is still pending, and an examination of the evidence for it need not be undertaken here. It will be sufficient if the direct application of it in the form of theories of logical thought and of the nature of moral action are considered on their merits. No injustice will be done to these theories by their separate examination; for Prof. Wundt's "apperception" means simply will, directed first internally, to mental states, and then externally, to muscular actions; external will being regarded as a derivative form of internal will. Whatever, then, may be decided as to the value of the principle of "apperception" in psychology generally and as to its use as a transcendent principle, the meaning of Prof. Wundt's theory of the nature of thought, for example, is clear enough. If thought can be shown to be essentially will, so far Prof. Wundt's contention is established, though apperception may not have all the scope he claims for it; if it cannot, then the principle is simply deprived of one particular application, but it is not shown to have no application at all.

Prof. Wundt's theory of the nature of Thought, set forth chiefly in the first section of his *System*, is that thought, as distinguished from association, is the bringing of representations into relation by the activity of self-conscious will, choosing in view of ends. In association also there is "relating," but here the relation appears as "given," not as voluntarily produced. While associations, as such, are always involuntary, acts of thought are always voluntary. The voluntary character of thought, however, only determines its general nature. All qualitative distinction among thought-processes, all whereon their special significance rests, is contained in the relations of representations that are at once the acts and the results of thought. Thought is decomposing activity, and proceeds according to a law of "dichotomy" or of "duality"; the original act of thought being a judgment ("Ur-theil," primitive division) which decomposes a total representation into two related members. Thought proceeds from wholes to parts, while association proceeds from parts to wholes (section vi., p. 573). With the development of the function of judging the formation of concepts runs parallel; these being formed out of the material of representations by the relating activity of judgment. The detachment of concepts from determinate single representations and the carrying of them over to others makes possible their symbolical designation by means of language. Because of the importance of language as the instrument of developed thought, it is necessary to base the investigation of the forms of thought on a view of the forms of its expression in language. Grammatical forms, indeed, are not exclusively results of logical think-

ing, but arise out of "mixed psychological and logical conditions". From these forms, however, we must try to arrive, by analysis and abstraction, at the fundamental forms of thought. Tracking out the forms of judgment, Prof. Wundt finds in the existence of the negative judgment the clearest confirmation of that "self-conscious will-nature" which is the internal characteristic of thought; the act of denial appearing to him to be essentially voluntary. The "apodictic judgment," again, is one that is voluntarily affirmed against doubt or denial. There is no sense in calling a judgment "necessary" when no one denies it. In the apparently exceptional case of the conclusion of a mathematical demonstration, which is expressly affirmed to be certain, though no one would think of denying it, the assertion of its necessity is equivalent to the assertion that adequate care has been taken in the process by which it has been arrived at (p. 65). Every form of thought may be called a "law of thought"; but all the various forms in which representations are connected admit of reduction to certain fundamental forms not reducible to one another. To these the name of "laws of thought" is more specially applicable. The fundamental relations to which all others admit of reduction are "identity" (total or partial) and "dependence". From the fundamental relation of identity spring the logical laws of Identity, Contradiction and Excluded Middle; from the relation of dependence the law of Reason and Consequent (*Grund und Folge*) or principle of Sufficient Reason (*Satz vom Grunde*). The principle of dependence becomes a "principle of the general union of our thought-processes," and so passes from a law of thought into a "law of knowledge".

Now is it not evident that Prof. Wundt's theory, at the crucial points, ends in quite unsustainable paradoxes? To answer this question, we have only to ask ourselves whether acts of thought are, as a matter of fact, always voluntary (*stets willkürlich*). Does not introspection make it perfectly clear that a real process of thought—say, a new argument or inference—often occurs quite involuntarily, while a process of mere association—say, the recalling of something to memory—needs voluntary attention? If this is so, then will, in the ordinary sense, cannot be the essence of thought in its distinction from mere association. But perhaps the most effective refutation of the theory may be found in what Prof. Wundt is obliged to maintain as regards the necessity of mathematical demonstrations. Can there be a more complete *reductio ad absurdum* of a theory of the nature of thought than that it requires us to admit that the Q.E.D. at the end of a demonstration of Euclid means—'For I have put forth all my will to connect the steps of this argument'?

On coming to consider what is said of the relation between thought and language, however, we find that Prof. Wundt's "*pro ratione voluntas*" theory, though not itself true, has at least the merit of suggesting by contrast the true theory. According to

Prof. Wundt, logical thought first exists, as a product of will, and then, in combination with other factors, creates symbolical language. Precisely by the inverse of this theory, the English Nominalists, beginning with Hobbes, have in effect solved the problem of the psychological nature of thought. The nominalistic solution is, that the essence of thought is to be general, and that generality is made possible by a system of particular signs, which constitutes language. Here the statement of the relation between language and thought gives immediate evidence of its truth by carrying with it the solution of the general problem as to the nature of thought itself. Thought is seen to have been created by articulate speech; as psychologically it remains inseparable from some kind of language. For Prof. Wundt, on the other hand, language has to thought from the first merely the external relation of an instrument.

An attempt may perhaps be made to rescue the theory of apperception by carrying back the inquiry to the origin of language. Prof. Wundt, for example, when he touches upon that question, says that language is the product of will (p. 402). If this could be proved true in any sense, it would not, of course, affect the nominalistic theory of thought; but the contention does not seem to be itself sustainable, whether in the form given to it in the *Physiologische Psychologie* or in the form now suggested. What is suggested by the references to language in the present work is that will directed by practical interests, rather than representation or feeling in their distinction from will, is the chief psychological factor in the development of speech. At most this may seem to have some application to the Chinese language, with its vocabulary of five hundred monosyllables made to express all meanings by changes of intonation and position. Given a modicum of original susceptibility and power of articulate response, "will" may here seem adequate to explain the rest. For the development of the higher languages (whether Aryan or Semitic) with their vocabularies composed of indefinitely varied sounds, the play of imagination and feeling would seem to have counted for more than mere will. And for the formation of the sounds even of Chinese something more than will would seem to have been necessary at the origin.

Before leaving the account given of thought we may draw attention to two points already noted in passing,—one a minor difficulty of Prof. Wundt's theory, the other a concession to Associationism. The concession is that the qualitative differences of thought-processes are to be explained not by the will, that is everywhere present in greater or less degree, but by the relations of ideas. The difficulty is that thought seems to be regarded as exclusively analytical. For the primitive judgment from which thought springs is said to be an act of mental division, and thought is said to proceed always from wholes to parts while association proceeds from parts to wholes. Is not this last dis-

tion in reality a distinction between analytical and synthetical thought?

The validity of knowledge, the nature of scientific proof and the methods of scientific discovery are dealt with in sections ii. ("Knowledge"), iii. ("The Concepts of Understanding") and v. ("Chief Points of the Philosophy of Nature"). In principle little is arrived at beyond the distinction, drawn at the end of section i., between the three accepted laws of formal logic and a general "law of dependence" or of "reason and consequent," which is supposed to be adequate to the explanation of everything from the confines of formal logic to experimental science, taking in all that is special to mathematical reasoning. That is to say, in material logic, so far as general principle is concerned, Prof. Wundt is content to remain at the stage reached by Leibniz when he formulated his law of "sufficient reason". Several steps in advance having been taken by the theory of material logic since then, Prof. Wundt's treatment necessarily seems inadequate, in spite of all its elaboration.

The most interesting discussion of a question of logical principle is that of the relative rank of the laws of "causality" and of "conservation". So far as the validity of these laws is concerned, Prof. Wundt is content with bringing them under the law of "reason and consequent"; but apart from the general question of their certainty and its grounds, there is the question which of the two is to be placed before the other. This is argued historically and otherwise, with the result that the highest place is given to the law of causation. In the course of the discussion the obligations of science to philosophy for its ultimate hypotheses are very well shown. It is pointed out that not one of the general ideas as to the constitution of matter which regulate special research has had its origin in special research itself (p. 281). Atomic doctrines and doctrines of the perdurability of matter and force, we are reminded here and elsewhere, first appeared as philosophical theories, not as results of scientific experiment and observation. In arguing the question between conservation and causality, Prof. Wundt contends that the conception of "substance," with the advance of science, becomes more and more subordinate to that of causality. Natural science, indeed, cannot wholly dispense with it, but from mental science it will soon have disappeared altogether. The notion of a substantial soul, derived from the notion of material substance, has been found to be of no service in psychology, which, in proportion as it becomes scientific, replaces the conception of the soul and its powers by the conception of a series of mental occurrences causally connected. Mental occurrence being ultimately that to which all else is reducible by the theory of knowledge, the conception of causality thus stands forth superior to the conception of substance. In mental science the law of causation takes a special form; a "principle of non-equivalence" having to

be substituted for the principle of equivalence of cause and effect to which the changes of the material world conform: but this does not affect the conclusion that the law of causality, in its general sense, is to be recognised as the higher principle. Even in physical science, considered by itself, Cause is now above Substance as Substance was formerly above Cause; for the conception now dominant in physical science is that of Substantial Causality, in which the conception of substance is auxiliary, merely guaranteeing a certain perdurability that has to be assumed when the changes of matter and energy are in question. The highest scientific principle is that of Actual Causality, or the causality of actual occurrences, physical or mental, without reference to substance. Applied to mental occurrences—by which in the end we have to explain the origin of the idea of substance itself—the conception of Actual Causality becomes an ontological principle.

This argument, taken as a connected whole, appears to be contestable at two points: first, as regards the view of the relations between the ideas of permanence and change in science; secondly, as regards the application to ontology of the modern criticism of the idea of substance. As a matter of fact, it would not be universally admitted that in science the notion of a permanent ground of occurrences has either suffered most from sceptical criticism, or tended to be displaced by the notion of a sequence of causes and effects. On the contrary, it has been thought that the notion of something that remains identical through change, when it acquired the precise form of the laws of the conservation of matter and energy, made possible a better formulation of the ultimate axiom of scientific truth than could be attained when, scientifically, the conception of cause was predominant. And there can be no doubt that the idea of conservation, in its complete expression, gained acceptance later in physical science than the idea of cause, though as a philosophical conception the notion of the permanence of substance was earlier. Prof. Wundt's procedure really amounts to using the sceptical criticism of the metaphysical notion of substance to discredit (or at least to depress) the scientific notion of permanence, while taking the idea of cause (at least in physical science) in the best form to which it has been brought by logicians. That the idea of a causally connected series of events is alone applicable in psychology, while the idea of permanence has its scientific application only in the realm of physical event, does not prove that the causal conception brings us nearer the ideal of scientific explanation, but rather the contrary. It is a familiar remark that the sciences of which the subject-matter is highest and most complex are not the most developed sciences. Again, though the dogmatic assumption of substance as the substratum of phenomena is no longer admissible in metaphysics, we still need some term to describe reality, in the philosophical sense, as distinguished from that which is not in the philosophical sense

real. Whatever term we accept, the question must be put, Is this reality momentary or permanent? This question Prof. Wundt puts in his own way when he comes to deal with ontology. He decides for a kind of Heraclitean view; the momentary existences he conceives as causally connected in the flux of events being thought of, in accordance with the idealistic theory of knowledge, as purely mental. There is, however, an Eleatic view—as Prof. Wundt seems to recognise in some places—that might be opposed to this without any restoration of that idea of substance which modern criticism has expelled. The merely “causal” view, it might be allowed, has a certain truth of its own; but we get nearer to the ideal of complete explanation by supposing an unchanging whole, variously determined according to the relations of its elements,—which are to be thought of simply as related elements in a whole; the assertion of their separate existence being a mere abstraction. The only elements that we can use in our metaphysical construction are, of course (just as in Prof. Wundt’s view), those that are arrived at by analysis of mind. This doctrine being just as compatible as his own with idealism and with the modern criticism of the dogmatic conception of substance, it follows that Prof. Wundt has not proved in ontology, any more than in phenomenal science, that the idea of temporal connexion stands above the idea of permanence.

Prof. Wundt’s Heraclitean doctrine, expounded at the end of section iv. (“The Transcendent Ideas”), is rather curiously combined, as will be seen, with a doctrine of a permanent “world-ground”. The genuine idealism of his ontological speculations, again, is preceded and followed by expositions of a complex and peculiar realism, of which it is not easy to give a consistent account. The main points of this doctrine seem to be (1) the distinction of will, as the true reality of the soul, from “presentation,” as something objective that is an obstacle to the will, and (2) the position that, since our knowledge of the external world is “conceptual,” and not “intuitive” (like our knowledge of internal states), external things must have an objective and purely “conceptual” reality. In support of the distinction between will and presentation we are told that the “Ego thought of as isolated from objects that hinder its activity is our volition (*Wollen*). There is absolutely nothing outside man or in him which he can call wholly and entirely his own except his will” (pp. 386-7). This is, of course, one statement of Prof. Wundt’s theory of apperception. For those who reject that theory, his attempted philosophical distinction between subject and object falls to the ground. As regards the second position, it is necessary to ask what is meant by our having a conceptual knowledge of things. Does the philosophical meaning of our conceptions of things lie in the possibility of their experiential verification, or does it consist in correspondence to a real world of concepts out-

side all minds? Unless Prof. Wundt takes the latter view, the conceptual character of our knowledge of objects cannot save him from Berkeleyan idealism.

In order to reach his final ontological doctrine, of which a fuller account must now be given, Prof. Wundt adopts the Kantian distinction between "understanding" and "reason" as marking the distinction between the problems of science and the "transcendent problems" of cosmology, psychology (or theory of the nature of the soul) and ontology. The essential character of reason he finds to be an incessant movement of the mind from what is scientifically known to theories of the whole on one side and of its elements on the other. Results of this movement in cosmology are the ideas of space and time as infinite, and of scientific hypotheses relating to the material constitution of the world as capable of indefinite progress. The first result gives us a "real," the second an "imaginary," transcendence. Real transcendence comes from the effort to connect everything according to the law of reason and consequent, applied to the form of experience; imaginary transcendence from a similar effort applied to its content. The "psychological *regressus*," it need hardly be said, leads Prof. Wundt to the doctrine of apperception. The theory of the individual soul, he then finds, in whatever way the psychological problem may have been solved, points directly to an ontological completion. And even if it did not, we should still be carried forward to ontology by the necessity of bringing our psychological into relation with our cosmological theory. Historically, it was the problem of the relation of mind and body that especially gave origin to the search for a doctrine of the unity of all being. Of the possible solutions, that only is found to be satisfactory which makes the material end in the spiritual *regressus*. Ontologically, elementary acts of will are, accordingly, the ultimate constituents of the world. These are not "active substances," but "substance-producing activities". Representations, it is suggested, may arise from the interactions of different wills. The final ontological idea of unity is that of an ultimate ground of the moral ideal of humanity, and at the same time of all being and becoming, in so far as from the point of view of the ideal we see in this being and becoming the means to the ideal as an end (p. 438).

Nature is unintelligible, except in relation to spirit, and is to be conceived as its preliminary stage; organic life being immediately preliminary to that spiritual life for the sake of which nature exists. The organism is a result of the past development of spiritual energy,—that is, of will,—and a basis for its future development. The will of the individual personality may be conceived, metaphysically, as composed of momentary and infinitesimal wills. It has immediately subordinate to it wills corresponding to the lower nervous centres, and it enters into a will of higher order, *viz.*, the will of the community.

This, though not conscious outside the individual wills of which it is composed, is as real as the individual will, or rather much more real because incomparably more powerful. When we reach the realm of spirit, properly so-called, the "law of equivalence of cause and effect" gives place to a law of "non-equivalence". This finds expression in the laws—so prominent in the author's *Ethik*—of "indefinite increase of spiritual energy" and of "heterogony of ends". Both these laws Prof. Wundt declares to be scientifically established by the psychology of communities and by history; though he admits that sometimes they appear at first sight inapplicable. In those cases we have to fill up the gaps in the evidence by "transcendent pre-suppositions". To make our view of nature consistently teleological we need the "pre-supposition" of an indefinite progress of mankind, having for its ideal limit (as is now explained) the formation of a common will of the whole human race. Now, if the "world-ground" is adequate to the attainment of this end, it is adequate to more than this. We cannot set up as an absolute limit the "practical ideal" of humanity. Progress towards this is only infinite relatively to us, not in itself. We must go on, therefore, to affirm progress beyond every assigned limit. The "transcendent ground" of the end to be attained by humanity is, therefore, to be supposed adequate to infinite progress, of which human history is only a single stage. Thus the ethical passes into a religious view of the world.

We have here arrived at the verge of Prof. Wundt's statement of the principles of ethics and of the philosophy of history, set forth in section vi. ("Outlines of the Philosophy of Spirit") as a further development of the general metaphysical doctrine of section iv. Progress, as we see, is the last word of his metaphysical doctrine, and is finally "postulated" on ethical and religious grounds. Yet the author does not renounce all attempt at scientific proof of his theses. In particular, he seeks to establish an "objective teleology" in nature by means of scientific and especially biological considerations. His general theory of organic life is wholly Lamarckian (though he would not accept that description); regarding instincts, for example, as the "mechanisation" of past voluntary actions, and seeking to explain organic modifications as the result of use and disuse with inheritance of acquired characters. It is less on this theory, however, that he seeks to base his teleological view than on the doctrine of natural selection—of which, in his specially biological chapter (section v., ch. 4), he hardly says anything beyond remarking that it does not explain variation (pp. 522-3). The Darwinian theory, he holds, is teleological because it conceives animals as perfecting themselves by putting forth will in the active struggle for existence. The conception of the struggle for existence contains the thought that in living beings "will-forces" become free which interfere in the course of nature so as to

determine events ; the organism itself becoming modified through the reactions of these forces (pp. 328-331). As Prof. Wundt lays much stress on this argument, it will not be unfair to test his teleological doctrine by an examination of it. The objection to it from the Darwinian point of view is obvious. The powers of animals may be developed, as Prof. Wundt says, by means of the active struggle for existence ; but, according to the Darwinian view, it need not be by any direct influence in calling forth the powers of individual organisms that the struggle for existence acts. If there were complete incapability of individual modification, except by a purely intrinsic process of development of innate powers from the germ, there would still be "natural selection". The organisms which by this intrinsic process came to be adapted to circumstances would be "selected," and the others eliminated. And if we suppose direct modification of some organisms by the putting forth of active powers called into existence by the struggle, the selection of the organisms modified by this process is simply one kind of natural selection among others. When any particular organisms have the power of perfecting themselves by active struggle, and when this is the kind of struggle that is taking place, those particular organisms survive. For "Darwinism" that is the whole statement. If properties acquired in the active struggle are transmitted, as well as the intrinsic properties that qualify for it, this is a fact in support of "Lamarckism". Obviously the Darwinian theory involves no teleological relation of any kind between the struggle for existence and the production of organisms that can actively adapt themselves. Teleology may not be disproved by the theory of natural selection ; but it is certainly not established.

In the absence of more convincing arguments for the "objective teleology" of nature, we are driven back on Prof. Wundt's "transcendent pre-suppositions". We are also driven back on these pre-suppositions in the spiritual sphere. For nothing definite is offered in the way of scientific evidence to support the "laws" by which Prof. Wundt seeks to formulate spiritual evolution. The "law of the heterogony of ends," indeed—though affirmation of it as the law of all social action seems a little incongruous with insistence on the factor of conscious will in the development of the lower forms of organic life,—may be admitted, even in the shape given to it in Prof. Wundt's *Ethik*, to be the expression of a partial truth. The attainment of one kind of end no doubt frequently leads to the attainment of ends unforeseen at first, and different in kind. This difference of kind Prof. Wundt now seems disposed to drop. In his present work he would apparently confine the "law of heterogony" to cases where the new ends, though not actually foreseen, are "in the same direction as" the original end. Such cases also, no doubt, frequently occur. Neither expression of "heterogony," however, seems to have any title to the name of a scientific law. For

both alike are statements of what occurs sometimes (not always) in human life, unaccompanied by any statement of the conditions of its occurrence. An expression with more claim to be regarded as a true generalisation is Mr. Spencer's law of the "multiplication of effects," which seems to include both forms of "heterogony". The later form of the "law of heterogony," we may admit, has not the disadvantage of the earlier, that while put forward as a positive ground for action, it is rather a consideration that limits the scope of rational ethics; but, on the other hand, it is the expression of a less interesting social fact. Prof. Wundt's formula of the "indefinite increase of spiritual energy" no one, of course, can be expected to admit without further definitions and explanations. This and the "law of heterogony" being left aside as at least not yet acceptable in the form that is given to them, we may, nevertheless, obtain a certain common ground for the discussion of Prof. Wundt's ethics by putting the result in this way: that he asserts the universal existence of "progress" in some sense, and that, while appealing to scientific evidence for the proof, he still finds it necessary to fill up the gaps in this evidence by "transcendent pre-suppositions". Not having found any scientific evidence for his teleology, we are compelled to take the "pre-suppositions" as the ground of his whole doctrine of evolution, cosmical, biological and spiritual. What, then, is the type of ethical theory that results from these "pre-suppositions"?

The basis of ethics, as now stated by Prof. Wundt, is the notion of the mind of the community and of its historical development. The community in its highest form, he shows, is in some sense both an "organism" and a "personality". The conception of it as a "personality" requires not only that the collective organism should be capable of unitary expressions of will, but also that it should be unconditionally autonomous. An individual may be a member of many communities, each with a collective will; but there is only one that the individual can recognise as unconditionally superior, and it is only this that has the marks of the true "collective organism" and "collective personality". The community to which these marks now belong is the "national state". The ultimate practical ideal for man is the union of humanity into a single ethical organism, or community of wills, excluding all dissentience of aims. This ideal may never be actually attained, but it is to be postulated as the end of evolution so far as man is concerned. The meaning of history as a collective movement does not consist in its mere relation to the happiness or perfection of individual men. Historical facts are "objective spiritual values," apart from any relation to individuals. So with all expressions of the collective will. When the reality of the collective will is recognised, an independent "content" must be ascribed to it, in agreement with the historical judgment which estimates the significance of

a people not by what it has been for the individuals who have belonged to it, but by what it has been first as a whole for itself and then for humanity (p. 636). Those actions are moral in the objective sense that promote the "free energising of spiritual forces". The ethical worth of a man, however, is to be estimated not by the objective "good" which he produces, but by his disposition; and the feeling of happiness, though not the end of spiritual goods, may serve as a kind of test of their presence.

The exposition of this historical and ethical doctrine is accompanied by a polemic against "the individualism of the *Aufklärung*". According to Prof. Wundt, the "individualistic" doctrine of the soul, that is, the doctrine of the soul as a kind of atomic "substance," led to "ethical individualism,"—by which he means egoism. Now that the mind or will of the community is known to be equally real with the individual mind or will, ethical individualism is superseded. Historical events and social institutions, therefore, are no longer to be viewed simply in relation to the good of individuals, whether ourselves or others. The ethical good is now conceived as "objective," or having reference to the whole, not as merely "subjective," or having reference to the individual.

Against this it may be urged both that the doctrine of the soul as an atomic substance was not specially characteristic of the *Aufklärung*, and that the *Aufklärung* was not, on the whole, egoistic. Nor is there any logical connexion between theoretical egoism and the "individualistic" doctrine of the soul. To regard the soul as a "psychical atom" is obviously not in the least inconsistent with the assertion that there is sympathy among individuals so far as they recognise one another as of like nature. It is true that the *Aufklärung* held an "individualistic" doctrine that has been superseded; but this was not the atomic doctrine of the soul, but the theory that explains society as the result of a conscious union of individuals at first separate, instead of taking the coexistence of men in society as a basis for its psychological account of the individual man. This individualism is consistent with, and has been associated with, quite opposite views as to the nature of the soul. Spinoza's view of the soul as a determination of the *intellectus infinitus* (which Prof. Wundt discusses, but not in relation to this point) did not prevent him from being an "individualist" in his social theory. On the other side, this type of social theory does not prevent either the recognition of the supremacy of the will of the community over the actions of individuals or the recognition of the State as an object of devotion superior to all private aims. Historically, the conception of the autonomous State as the supreme "collective organism" received adequate expression long before the modern psychological advance in the theory of the relations between man and society. And, in the end, there is an "individualism" that is not touched by this advance.

The social mind, after all, only arrives at consciousness in the individual mind. A necessary deduction from this is that social institutions and historical movements must be estimated by the kind of individual life that results from them,—which is precisely the “individualism” that Prof. Wundt desires to invalidate.

His procedure—beyond the historical argument given above—consists partly in an application of the doctrine of apperception to the relations between the individual mind and the mind of the community, partly in what we may venture to call a negation of the ethical judgment in history. The mind of the community being regarded, in accordance with the doctrine of apperception, simply as “collective will,” this is brought into comparison with the individual will and found to be more powerful. The individual will, then, it is said, must subordinate itself to the social will. No doubt this is true in the sense that in case of conflict the declared will of the community is supreme. And when the individual and the social mind are conceived simply as “will,” this doubtless exhausts the whole case. But let us suppose—as Hobbes, for example, supposed—that the individual and the community have a reason which is not simply will and which is capable of directing action. In that case the individual reason can put before the ruling power considerations for or against any mode of action, and these can be accepted or rejected on rational grounds; the criterion being, when the ultimate philosophical view is taken, the kind of individual life that the State ought to promote or hinder. Thus the distinction of reason from will makes it conceivable how philosophy can have a practical influence. According to Prof. Wundt, on the other hand,—and this is consistent with his doctrine of apperception,—all that philosophy can do is to wait till the will of the community has effected something, and then to treat this, for purposes of edification and contemplation, as an “objective spiritual value”. In short, Prof. Wundt’s “owl of Minerva,” like Hegel’s, does not set forth till twilight. For Prof. Wundt also “the real is the rational”. His “transcendent presuppositions” require not only that social institutions should have a value in themselves apart from any relation to individuals, but also that social movements should have this value; for these, by the ethical postulate that the movement of history is continually progressive, are all parts of “progress”. Thus not only the element of stability in social life but also the element of change (quite in the spirit of the Hegelian dictum, as it is fair to concede to its defenders) is raised above all “individualistic” criticism. What is excluded is not precisely change, but change and conservation alike, when either is defensible by the individual reason; for the exercise of this in any particular case implies that “the real,” whether in the form of custom or of obscure social impulse, may not be “the rational”. Criticism of institutions or of movements in relation to the life of individuals, if the conclusion is for change, is an uprising against an existing

"spiritual value," if the conclusion is in favour of what exists, an uprising against progress. And we must not suppose that we have got a criterion in Prof. Wundt's "free unfolding of energies". For every kind of social action without distinction is in some sense a free unfolding of the energies of the community. An example of a real criterion is Spinoza's declaration that the end of the State is freedom; for Spinoza meant personal freedom, which is attained or not attained according to the measures taken, and can therefore serve as a test by which to distinguish good from bad States. Prof. Wundt's "free unfolding," so far as can be learnt from his book, simply means endless social movement, as historically determined everywhere; whatever forms part of "history" being regarded as above criticism. In Prof. Wundt's doctrine, that is to say, there is for the State no criterion of action. For the individual, whether in the past or in the future, the "objective" criterion is simply success or failure in getting into the predominant social movement.

This doctrine is certainly not a necessary result of the introduction of ethical "postulates" into metaphysics; and it is a doctrine that has appeared independently of any ostensible use of "transcendent pre-suppositions". In Prof. Wundt's philosophical system, however, there seems to be an unmistakable logical connexion between the postulation of universal progress, on grounds that are regarded as ethical, and the denial of every practical criterion but the "real". Want of disinterestedness in the theoretical outlook has here led to denial of the practical bearing of philosophy. Those who have believed or disbelieved in progress on empirical grounds—the historical "optimists" and "pessimists" for whom Prof. Wundt expresses equal contempt—have at least asserted something more than a tautology when they have asserted that progress exists or does not exist; for they have compared events with their practical ideal and then tried to sum up the results of the comparison; and they leave a certain independence to philosophical ethics. Prof. Wundt and those who agree with him, having made their "transcendent pre-suppositions" as to the "world-process," are prevented from making anything more than a verbal assertion of progress; for whatever the movement of history may be they are resolved to interpret it as progressive; and they leave no independence to the ethical ideal. In support of their view, they of course appeal to "the judgment of history". This, they say, determines for us the objective ethical character of actions. If they are right, however, the judgment to which they appeal ought to be simply the record of historical success or failure. But is this what is usually meant by the judgment of history? Obviously it is not. Instead of being a tribunal that is above ethics, the historical record is implicitly ethical because it is not simply a record of facts, but is also a consensus of opinion, summing up more or less effectively the moral judgment of mankind; and this opinion has not been

wholly determined by success or failure. Prof. Wundt's type of thinking reverses the procedure of the historians who have contributed to form the consensus of moral judgment on historical events and personages, and tries to get "objective" moral judgments out of the course of events, assumed to take place in agreement with the requirements of a moral ideal. These objective judgments are then to be imposed on men in general, and on the moral philosopher in particular, to whom is assigned the duty of finding satisfaction for the emotions by arranging facts so as to agree with pre-suppositions. An ideal for the sake of which a predominant movement may have to be opposed is rendered altogether inconceivable. Thus the affirmation of universal progress as a moral postulate has led to the paradoxical result of the negation of the ethical judgment not only in history but finally in ethics itself.

THOMAS WHITTAKER.

L'Automatisme psychologique: Essai de Psychologie expérimentale sur les Formes inférieures de l'Activité humaine. Par PIERRE JANET, Ancien élève de l'Ecole normale supérieure, Professeur agrégé de Philosophie au Lycée du Havre, Docteur ès Lettres. Paris: F. Alcan, 1889. Pp. 496.

Closer examination confirms a first impression (MIND No. 56, p. 598) of the special importance of this book. Among the recent productions of the younger French psychological school, it has features of its own that arrest attention. Nothing has of late been more remarkable than the great increase of psychological activity in France. With the *Revue Philosophique* there at hand, in monthly issue, to stimulate as well as welcome new investigation, a large number of more or less well-trained workers have thrown themselves upon particular problems of psychology, and have obtained results of no small interest and promise. While in other countries, where *positive* psychological inquiry is being pursued (as not yet in England) by an active professional class, the endeavour at present is rather to get more exact results upon the beaten lines of psychophysics, in France there has been a singular eagerness to break new ground for psychology on the field of abnormal mental experience—chiefly that state of hypnotic trance which lends itself so readily to the conditions of scientific experiment. In saying France, Belgium is not to be forgotten, with Prof. Delboeuf so much to the front; nor is it meant that in other countries (England this time not excepted) effective part has not been taken in hypnotic research. Still in France, as there, for whatever reason, hypnotic 'subjects' appear to abound in exceptional number and variety, so a larger body of trained and capable investigators has started up to turn the multitude of new, or at least newly ascertained, facts to psychological account. MM.

Beaunis, Binet, Féré, Richet, are some of those that have of late been most active in the work of positive research as well as of interpretation; and now by his present volume, which sums up and brings to a head the independent investigation of some years past, Prof. Pierre Janet of Havre (not to be confounded with the well-known Prof. Paul Janet of Paris) takes rank among the foremost of those who are pressing on to issues of remarkable enough import.

There is the more reason not to delay giving some account of the volume, as it happens that, in the present No. of *MIND*, M. Binet deals at first hand with the same question of double (or plural) consciousness upon which Prof. Janet's researches converge. The question, however, is one that otherwise might well have engaged attention earlier. Though first raised in its present form by Dr. Azam of Bordeaux in his report on the now famous case of Félicité X. (see *MIND* i. 414, 453), it has of late years forced itself also upon independent inquirers in this country. The lamented Edmund Gurney was led in the course of his hypnotic experiments (the more positive results of which were first recorded in *MIND*, see especially ix. 110, 477) to speculate, in *Proceedings of the Society for Psychical Research*, pt. xi., as to the bearing of his discovery of extremely involved alternations of conscious life on personal identity; and, again in the same *Proceedings*, Mr. F. W. H. Myers has obtained results from study of automatic writing that come still more directly into comparison with those of Prof. Janet and others in France. It was, any way, high time that psychologists of the older tradition should begin to reckon with the new class of facts. If the attempt is now made first with the work of a foreigner like Prof. Janet, this is because of its more systematic character. Strenuously as it has been conducted, the work of the English inquirers remains so far at a lower stage of psychological elaboration.

The title of Prof. Janet's book does not of itself lead us off familiar ground. Ever since it began to be at all understood how the nervous system was involved with mental action, it became a definite question whether bodily acts that seemed only less complex than those called voluntary had like these also a psychological character. Already in the middle of last century, Hartley quite accurately marked off 'automatic' from voluntary acts, and among the automatic distinguished between primary and secondary. Now, as secondary-automatic acts are such as begin by being voluntary for the individual, these obviously cannot be wholly divested of psychological character; yet, as automatic, they as obviously are related to those other (complex) activities which the individual never had to learn. There is no need, for the present purpose, to complicate the statement by referring to the change of border-line between the primary-automatic and the secondary-automatic introduced from the

evolutionist point of view. However the line be drawn between them for the individual, or between the automatic and the voluntary, the question remains whether the automatic are to be held as related to the voluntary upon the physiological side only or also as phenomena of subjective import. It is a question that was rather hotly debated in this country some twenty years ago. On the one hand, the physiological relationship was by some brought so strongly into relief that it was argued as if physiology, which seemed to give a sufficient account of automatic action, could give the only scientific account of conscious action also; consciousness (when present) being represented as a mere accident or 'epiphenomenon,' interesting enough, no doubt, in a way, but without real significance. On the other hand, it was contended, with more or less consistency (or inconsistency), that, as consciousness could never rightly be so regarded, scientific analogy required that subjectivity in some form or degree should be predicated of all those 'automatic' physiological acts which stood obviously related to the more complex cerebral acts called (from the subjective point of view) voluntary or conscious. On both sides, though some reference was made to particular facts of experience, the discussion was essentially speculative, and in this respect did not differ much from the kind of general argument which, long earlier, Leibniz had urged in favour of a subconscious or unconscious mental life. Now it is here that Prof. Janet makes a distinct advance with his "psychological automatism". While ranging himself on the side of those who refuse to take consciousness as commensurate with mind, he arrives at the position by a line of strictly experimental inquiry.

The "automatism" with which he is able so definitely to experiment is, indeed, peculiar. It is not any action that is referable to lower centres in the nervous system (from the basal ganglia downwards), such as in earlier controversy has chiefly been considered. The motor response which Prof. Janet evokes in his 'subjects,' and which, in spite of their not being consciously aware of it while it proceeds—or, to speak more strictly (since he wavers in his use of the word "consciously"), in spite of their not remembering it after it is over—he yet claims as properly "psychological," is called forth by impressions that must be supposed to reach their appropriate 'centres' in the cerebral cortex. The automatism of the case lies, for him, in a dissociation from the general stream of conscious experience and activity that makes up the normal personality of the individual. Three abnormal conditions, related but different, are found in that class of hysterical patients to which (aided, in the happiest and most effective way, by two practising physicians, Drs. Gibert and Powilewicz) he has in the main confined his inquiry. The first is the *cataleptic*, the psychological significance of which lies in the extreme simplicity of the phenomena presented. In cata-

lepsy (whether natural or induced), the 'subject,' otherwise unconscious, responds with specific movements to specific sensory impressions (or imposed emotional attitudes); thus manifesting, according to Prof. Janet, under strict experimental conditions, the true elementary mode of mental action, which Condillac vainly sought with his supposition of the marble statue endowed with first one and then another kind of passive sense-experience. The *hypnotic* state (proper) comes second, representing for Prof. Janet the next higher stage of mental complication; in which the motor response—so much more complex than in catalepsy that the 'subject' might appear quite normal to an outsider—depends no longer on mere sense-impressions, but on images involving (with or apart from direct sense-impressions) the whole mechanism of memory. And from this, as Prof. Janet contends, is further to be distinguished a third state, that may be called the *suggested*; in which, with no other modification of normal consciousness beyond a certain narrowing, the 'subject' is automatically determined to specific action by direct percept and most of all by the spoken word,—though here, as already in the hypnotic state, the act, as it grows more complex, is found less certainly to follow. Now a 'subject' may be wholly possessed for the time being with some one of these states, or, as Prof. Janet finds, the characteristics of one or other of them may appear concurrently with the normal consciousness of the individual (such as that may happen to be). Hence a division of his whole treatise under the two main heads of (1) "Total Automatism," (2) "Partial Automatism".

Chief psychological interest, at least as regards the question of plural consciousness, attaches to Prof. Janet's "Partial Automatism," but also, in the first division of his work, he brings into view many facts of striking significance, and discusses them with no ordinary insight. Of the truth of his initial position (supposing the facts to be all, as they seem to be, most carefully ascertained) there can be no question: it is in such isolated instances of movement following straight upon impression as catalepsy presents, and not in any bare sense-impression by itself, that we must look for the mental unit. What is practically the same truth had already, for a considerable time back, been accepted by psychologists, chiefly through demonstration, from the physiological point of view, that reflex action is the type of all nerve-process up to the highest; but, none the less, it is a very desirable and effective verification that is supplied by Prof. Janet's *psychological* study of cataleptic patients. Still more remarkable is his detailed treatment of Hypnotism. Chaps. ii., iii., on "Forgetting and Plurality of Successive Psychological Existences" (pp. 67-138), and on "Suggestion and Narrowing of the Field of Consciousness" (pp. 141-220), are a weighty contribution to the understanding of a subject which, if it has now fairly established its claim to the serious scientific regard withheld

from it (through prejudice) at an earlier time, is, so far, anything but matter of scientific agreement. On the main questions now at issue among contending theorists, Prof. Janet has been led, by his own observations, to some rather decided conclusions. Without subscribing to the details of the Salpêtrière doctrine, he yet holds with this, rather than with the opposite doctrine of the Nancy school and others (like Gurney and Prof. Delboeuf), on the point of the essentially abnormal, to the extent of morbid, character of the hypnotic state. He puts it, indeed, only in the form that there must be some "psychological disaggregation" before a person will pass naturally or can be thrown into the condition of hypnotism, but on the point itself his experience, so far as it has gone, leaves him pretty confident (p. 451). This, however, is one of his later conclusions, not brought into view while he is still at the stage of "Total Automatism". Here his main concern is to seize the truly distinctive feature of the hypnotic state, and this he finds to be a certain more or less complex modification of the function of memory. The hypnotic 'subject' (1) in reverting to the normal condition has no memory of what went on in trance, but (2) recovers such memory on going into the trance again. Exceptions to the universality of (1), as urged especially by Prof. Delboeuf (cp. *MIND* xiv. 470), are rejected by Prof. Janet as apparent only. He has himself still another mark to add, though less constant, (3) that the 'subject' in trance remembers what has gone on in the normal state. The facts as to memory have been noted before, by no one, as he recognises, more impressively than by Gurney. What is peculiar to Prof. Janet is his insistence on them as constituting the whole specific difference of the state. Not that he would deny other modifications of the 'subject's' conscious life, especially when the state is profound; but, short of this, the break of memory on reversion to the normal state, with resumption of memory when the normal state is again in abeyance, is for him proof all-sufficient that the (normally) forgotten condition of conscious life was hypnotic proper. And, in so saying, it is not only the various physical signs relied upon by some that he rejects as indistinctive. He not less confidently waives aside the loss of independent volition, which is commonly taken as the characteristic and, in a practical point of view, critically important psychological note of hypnotic trance. For it is here that his other position is declared. There is a state in which 'subjects' are found to act (at least within limits) as if they had no will of their own; but, according to Prof. Janet, it is not hypnotism. While hypnotics may be found unsuggestible, there are suggestibles who cannot be hypnotised. And if "suggestibility" thus fails as the test of hypnotism, it is a state that itself equally stands in need of explanation. Prof. Janet's account of it is that it is not found except where there is evidence of marked narrowing of the whole conscious field. This

may result from "distraction" or what not—the limitation is for Prof. Janet the essential condition upon which the automatism of response, to verbal command or other imposed *percept*, depends. The state, in fact, as he urges, resembles the normal consciousness of children (or, as he might have added, the mental condition of lower animals), of which, with manifest limitation of general range, impulsive action is the most salient feature. It is only the matter of causation that Prof. Janet fails to prove in the case—that child or suggestible adult is irresistibly impelled to act *because* of the absence or reduced number of other conscious modifications at the time. At least, of people in general, it can hardly be said that their pliability from without is in proportion to their narrowness of mental view, when dogged persistence of aim is found so often to accompany this. (And, perhaps, the use of the word 'dogged' might suggest doubt as to the sufficiency of the explanation for the lower animals either.) Nevertheless, Prof. Janet's arguments are not to be lightly passed by; but all that he urges must be well considered for any satisfactory theory that may yet be devised to cover all the facts of hypnotism. For, if he does not rest content with the suggestion-theory that has so far gained the upper hand, he yet does not deny or ignore any of the psychological facts upon which it is based. Nor is it in any resort to a mystic supposition of physical influence—but, on the contrary, in a steadfast adherence to the ground of psychological experience—that he looks for a solution of the differences of view that as yet so sharply divide hypnotic inquirers.

The general outcome of the prior study of "Total Automatism" is that, while down to the lowest of the three states noted and discussed there is psychological (not mere physiological) process going forward, the result even in the highest of them stops short of the full and perfect work of conscious elaboration. Psychic activity, which at every grade takes the form of synthesis of experience, attains its highest development in a reference of the whole variety and mass of experiences to a unitary self or person. So far, then, as more or less independent strands of mental process are disclosed in the various kinds of automatism that alternate in hysterical 'subjects' with their common self-consciousness, not only is there the interest of studying the abnormal formations by themselves, but they may be made to shed a new light upon the central problem of psychology. And still more, if evidence is next forthcoming that they can have an effective existence simultaneously with the subject's regular consciousness. The mustering of such evidence, with interpretation of it for the understanding both of what may be thus abnormal and of what is normal in mental life, is the task that Prof. Janet sets himself in his second and rather larger division of "Partial Automatism".

Readers must be sent to the book itself for the extraordinary

story of different "psychological existences" which Prof. Janet has found to concur, as well as alternate, in this or that 'subject' of his. They come first distinctly into view in connexion with the treatment of hypnotism in pt. i., the peculiar phenomena of memory there disclosed giving the means of marking their distinctness. Léonie, for example, a demure peasant woman of middle age, suffering from hysterical anæsthesia of the left side in her common or now normal condition, becomes gay and saucy in a somnambulant state into which she is apt to pass or can easily be thrown, and can from this be thrown further (with intermediate stages of lethargy and catalepsy) into still another hypnotic state, in which there appears a greater fulness of conscious life,—at least in the way of memory. For, while Léonie 1 knows nothing of Léonie 2 or 3; and Léonie 2, cognisant of Léonie 1 as a humdrum *other* person, knows nothing of Léonie 3; this last adds to experience of her own a cognisance of all that has happened in the experience of Léonie 2 and Léonie 1, though taking them for different persons from herself and from each other. Other 'subjects,' Lucie and Rose, with different morbid history and symptoms, present equally, or still more, complex mental alternations, of like general character but varying in some particulars. Now, the abnormal states of these 'subjects,'—whether of the hypnotic type just mentioned, or of the simpler cataleptic type, or of the other distinguished as "suggested,"—being all marked by an activity that is more or less automatic, there is in this afforded a means of determining the effective presence of one or other of the states concurrently with the normal conscious life of the individual. The facts of such concurrence are given in a chapter on "Subconscious Acts" (pp. 224-69). By easily-arranged experiments with his 'subjects,' otherwise normally conscious, Prof. Janet gets well-pronounced partial catalepsies (of insensitive hand, arm, &c.); and, again, by mere "distraction" of the main conscious stream, obtains execution of more or less complex suggested acts. He thereupon studies at length the facts of "post-hypnotic suggestion," meaning acts which, suggested under hypnotism, are unerringly performed in the waking state or in reinstated trance. The different classes of fact join on to one another, and leave him at the end with the general conclusion, not only that there are real psychological processes going on outside the ken of the subject's regular personal consciousness, but that these may have a quasi-personal unity of their own.

So far, it is with this notion of independent synthesis accomplished to greater or less degree by the side of the main stream of consciousness that he advances beyond the traditional thesis of Unconscious (or Subconscious) Mind. He makes a further advance when he next goes on to seek for an interpretation of the plural experience which the different kinds of automatic activity—but chiefly the activity of hypnotism—give evidence

of in the hysterical 'subjects' under investigation. The peculiar modifications of memory, before noted as sign of the hypnotic state, being now held to prove that the complex automatic acts abnormally executed imply the presence of other "psychological existence" besides the normal one, the question is, what explanation can be given of the interwoven breaks and resumptions of memory. Here the anæsthesias of Prof. Janet's 'subjects' assume a critical importance. It is to be borne in mind that the normal consciousness of those 'subjects,' though rounded off into the usual personal form, is maimed and imperfect to the extent of their want of sensibility; the anæsthesia affecting not only the skin (part or whole) but also, it may be, other organs of special sense, including that one of highest objective efficacy, the eye. Now, first, it may turn out with 'subjects' of this class that, on passing or being thrown into the abnormal hypnotic state, they acquire a fuller consciousness, by ceasing to manifest the anæsthesia of the normal (hysterical) state.; and if, as in the case of Léonie, &c., they are susceptible of different degrees of hypnotic affection, it may be in the most advanced and rarest of these (for them) abnormal states that they most nearly approach to the normal condition of healthy people. Certain it is, according to Prof. Janet's experience, that only when, after being in any particular state of whatever degree, they again pass or are thrown into a state of the same kind or degree, do they have memory of what went on in its previous occurrence. This assertion holds without qualification (as one may say) *downwards*: i.e., in any state, including the 'subject's' normal one of lower sense-potency, there will be no memory of what went on in the hypnotic state of higher sense-potency. Only in some still higher one, like that of Léonie 3 or Rose 4, may there be, along with exclusive memory of its own, memory also of all that has gone on in any lower state down to the so-called normal (Léonie 1, Rose 1). The memory, in fact, seems to be a function (as mathematicians would say) of the amount and kind of effective sense present in any of the states. And this conclusion can further be supported by more specially arranged experiments. Prof. Janet's 'subjects' being open to suggestions in their common and also in their hypnotic states, he can produce in them "systematised anæsthesias," meaning suggested loss of sensibility within strictly defined areas, especially of skin or eye. The phenomenon was well known to the older mesmerists; a reference to whom at all points is, by the way, one of the most interesting features of Prof. Janet's exposition. His own merit is in employing it as test for his view of memory as giving, by presence or absence, the one means of distinguishing between different "psychological existences". So far as can be judged from the record of his experiments, these seem to have been conducted with all due care, and they may be taken to warrant his conclusion as to the relation between memory and (effective) sense

in his 'subjects'. It may be the more readily accepted because, after all, it only bears out the current psychological doctrine that the representative image, as it directly revives the sense-percept for consciousness, involves excitation of the same cerebral parts. Since there can be no doubt that the anæsthesia of hysterical 'subjects' depends upon central rather than peripheral disturbance of the nerve-system, what hypnotism may be supposed to do for them is to restore the working of parts of the cerebral mechanism that have got out of gear, and thus promote mental efficiency for the time being. So far, on the other hand, as quite healthy persons may be hypnotisable at all, the effect in their case might rather be to throw the cerebral mechanism out of gear, with general loss of mental power, though with the possibility of abnormal heightening of particular functions set free for the time from regularly balanced control. However this may be, the relation that seems to be established, by experiment with those hysterical 'subjects,' between memory and perception, or (as it may be put more generally) between representative and presentative experience, has, over and above the light it throws on the varying complications and disintegrations of their mental life, an undeniable importance for psychology in general.

But the question still remains, how the plurality of "psychological existence" is to be reconciled with personal unity. Not to leave untouched what Prof. Janet has further to say on this main point, many other interesting observations on the behaviour of his 'subjects,' all discussed with much psychological acuteness, must be passed over. His whole next chapter (pp. 367-433), on "Various Forms of Psychological Disaggregation," can also be little more than mentioned. Here he reviews the different phenomena that in all ages have suggested the notion that certain forms of human action reveal the agency of external spirits, demons or what not, working through the human medium. That all of them—from the wonders of the divining rod, &c., through present-day spiritism, to the facts of impulsive madness, fixed idea, hallucination and possession—are (dupery apart) explicable from resolution of normal conscious life, in the 'subjects' of them, into separate strands of experience (passive and active) that run on together without mutual cognisance, is shown by Prof. Janet at length with excellent effect. For him they are but cases, more or less pronounced, of what he then goes on, in a final chapter (pp. 444-78) of pt. ii., to describe as "Moral Weakness" in opposition to "Moral Force". "Moral weakness," or "psychological misery," is that state of general disorganisation in which the mental life splits up into a number of groups of "sensations and images" working themselves out with an automatic regularity and relative independence. The antithesis is that "moral force" of the healthy individual, in whom, though automatism is also there (as seen in the phenomena of distraction, instinct, habit, passion), there is one supreme controlling activity

whereby the whole mental economy is held together. What, then, is the nature of this highest activity, in the abeyance of which it is that the elements of normal personality are so prone to fall asunder? Prof. Janet, for his part, can find it only in a volition that has no direct relation to such ideas (*viz.*, percepts and images) as are always in themselves automatically motor, but on the contrary depends upon a perfectly disparate class of "ideas of relations" or "judgments," not by themselves motor. He takes up, in fact, a position analogous, as he says, to the apperception-theory of Prof. Wundt or to the *réflexions* of Maine de Biran (who, it is evident throughout, has had a special influence on his whole manner of psychologising). Some slight indication is then offered (p. 474) as to how the volition thus determined by pure intellect may get into working relation with the images and percepts that have motor efficiency. It is, however, all too vague to afford a basis of useful discussion. And as something more may soon be said in these pages on the general question of will and automatism, anent Dr. H. Münsterberg's notable researches (cp. *MIND* No. 56, p. 607), there is the more excuse for abstaining from discussion at the end of a notice which, though not short, has been rendered by circumstances much more perfunctory than was intended. Its main purpose, however, will after all have been attained if the reader is not left in doubt that some of the deepest questions of psychology, and of philosophy too (in which connexion a short general "Conclusion," pp. 479-88, is not to be overlooked), have been placed in a new light by the labours of Prof. Pierre Janet.

EDITOR.

VIII.—NEW BOOKS.

[These Notes (by various hands) do not exclude Critical Notices later on.]

The Critical Philosophy of Immanuel Kant. By EDWARD CAIRD, LL.D.,
Professor of Moral Philosophy in the University of Glasgow, &c.
2 Vols. Glasgow: J. Maclehose & Sons, 1889. Pp. xxiv., 654;
xix., 660.

This "connected view of the Critical Philosophy, showing the relations of the three *Critiques* to each other and to the other works of Kant, which may be regarded as illustrations or developments of his main argument," has not only a much wider scope than the author's *Philosophy of Kant* (1877), which was confined to the *Critique of Pure Reason*, but even in the part of it now concerned with this (i. 227-654, ii. 1-142) reproduces but a few passages from that earlier work. It is quite the most comprehensive and maturely considered contribution that has yet been made by an English writer to the understanding of Kant's whole philosophical achievement. Critical Notice will follow.

An Epitome of The Synthetic Philosophy. By F. HOWARD COLLINS. With
a Preface by HERBERT SPENCER. London and Edinburgh: Williams
& Norgate, 1889. Pp. xviii., 671.

The "compiler" (as he calls himself) of this goodly volume has already placed Mr. Spencer's readers under no ordinary debt by the careful indexes he has drawn up of late years for the different works composing "The System of Synthetic Philosophy". Now he does still more for them by giving, in a single volume (again not without the appendage of a serviceable universal index), the main gist of the whole ten volumes yet produced. It is a most useful piece of work, done not only with great devotion but also excellently well. Nor is the performance less meritorious because Mr. Spencer's exposition, proceeding always in a certain regulated fashion, lends itself more easily than another to abstraction of its main gist. The plan followed throughout is to reduce each "part" of the original to a single chapter, and each original chapter to a single paragraph. The result is a serried array of pregnant statements, the full meaning of which may not easily be apprehended by readers coming to them for the first time, but which, in their condensation, will admirably serve the purposes of those who, knowing the originals, may want to refer to particular points, or to be reminded of the general course of the argument at any stage of the philosopher's widely drawn system. Mr. Spencer's "preface," besides expressing a general approval of the enterprise in motive and result, reproduces sixteen short paragraphs (almost sentences) in which he had himself sought to convey to an American friend many years ago the cardinal principles of his whole scheme of thought. It is well that this quintessence of the system should be so brought into public view by Mr. Spencer himself, but when he gives the sentences as an epitome of Mr. Collins's "epitome," he hardly does himself or his follower full justice. The sentences are throughout of purely objective import, and suggest nothing of that subjective consideration which, as brought forward both

in *First Principles* and in *Principles of Psychology*, gives the system its properly philosophic character.

Proceedings of the Aristotelian Society for the Systematic Study of Philosophy. Vol. I. No. 2. London: Williams & Norgate, 1889. Pp. 148.

Of the papers here printed the most noteworthy is Mr. Hodgson's Presidential Address for the Session 1888-9, on "Common-Sense Philosophies". A somewhat wide meaning is given to the term; all philosophies—whatever their speculative pretensions—being classed as "philosophies of common-sense" in which (as it is contended) some inadequately analysed fact of experience is taken as the basis for a philosophy. The characteristic of the common-sense view of the universe is held to be that it regards it as consisting of Persons and Things,—rightly from the point of view of ordinary experience, but inadequately from the philosophical point of view. By common-sense, things as agents are identified, from practical motives, with their operation. This identification is then carried forward into philosophy and made a philosophical tenet. Thus the main question of philosophy—What reality is?—is answered as soon as asked, and philosophy becomes "a kind of general science, *minus* scientific exactitude". "Instead of making the dicta of common-sense absolute, what has to be done is to endeavour to retrace the steps, unravel the complicated courses, by which common-sense arrived at its dicta in the first instance, under the influence of its practical tendency." That is, genuine philosophy must begin with an analysis of knowledge. The assumption of common-sense facts as philosophical data being facilitated by the ambiguity of "consciousness *per se*" (which philosophy deals with under the rubrics of "analysis of elements" and "distinction of aspects") and "agent or agency" (which is a fact of science and common-sense),—agency being attributed to consciousness and ultimate philosophical meaning to the agents of the world of common-sense and of science,—the author sets himself to remove this ambiguity, after first tracking it through materialistic and idealistic systems of speculative philosophy. The last result attained is a philosophical distinction between "the finite world of things and persons" and "the infinite universe". The universe as infinite is found to be the ultimate object of philosophy. Speculatively this cannot be grasped; but to the practical reason it is accessible as an object of faith. The second paper, by Mr. M. H. Dziewicki, on "The Standpoint and First Conclusions of Scholastic Philosophy," is an attempt to find points of community between Scholasticism on one side, and Scepticism, Hegelianism and Empiricism (each in turn) on the other. The Rev. J. Lightfoot, in a paper on "The Philosophy of Revelation," argues for the philosophical possibility of a revelation, by supra-sensuous experience, to the individual soul. A rambling answer by Mr. B. Hollander to the question "Do separate Psychological Functions require separate Physiological Organs?" contributes nothing to the elucidation of the subject. Mr. B. Bosanquet, in a paper on "The Part played by Æsthetic in the Growth of Modern Philosophy," insists on the importance, for Europe, of the German movement of thought from Kant to Hegel, and, more particularly, on the influence of the æsthetic ideas of Winckelmann and Schiller in giving positive direction to this movement itself. Mr. F. C. Conybeare writes on "Proclus and the Close of Greek Philosophy," Mr. A. M. Ogilvie on "The Psychology of Sport and Play". Two 'Symposia' are printed: one on "What takes place in Voluntary Action?"; the other on "The Nature of Force," started in a paper by Dr. G. J. Stoney (given in abstract), of which nobody can say that it is not ambitious enough or that it is wanting in elaboration either.

A History of Philosophy. By JOHANN EDUARD ERDMANN, Professor of Philosophy in the University of Halle. English Translation edited by WILLISTON S. HOUGH, Ph.M., Assistant Professor of Mental and Moral Philosophy in the University of Minnesota. 8 Vols. London: Swan Sonnenschein & Co; New York: Macmillan & Co., 1890. Pp. xx., 786; xvi., 719; ii., 857.

"The Library of Philosophy," first announced some two years ago, is now formally inaugurated with the promised translation of Erdmann's well-known *Grundriss*. The scheme of the "Library" as given in MIND xiii. 817 is now farther filled in with a promise of an original (not historical) treatment of Ethics by Prof. E. Caird and of Epistemology by Mr. J. Ward. The translation of *Erdmann* has taken a year longer in the production than was contemplated, but this is no way surprising when the extent and difficulty of the work are considered. Though called only *Grundriss* by the author, in comparison with his larger work on Modern Philosophy (1884-58), the more compendious treatise, first published in its two divisions within the year 1866, was no mere compilation but, even when it gave only general indications, was a genuine book, based on independent reading and thought. The editor of the translation is therefore not unjustified in giving it to English readers as *A History of Philosophy*,—as, in point of fact, had been done before with Ueberweg's *Grundriss*, when that useful but very differently conceived book found a translator in the late Prof. G. Morris of Michigan. It is matter for real congratulation, in the dearth still of original English or American work over the whole field of historical philosophy, that by the side of the one important German compend of this generation the other, so well-fitted to serve as its complement, is now made accessible to the English-speaking student. In the latter as in the former case it is to an American scholar that thanks are due; but for *Erdmann* no less than six collaborators (four of them English) deserve credit by the side of Prof. Hough. Beyond translation of Erdmann's interesting prefaces to three editions (till 1878), the editor's duty has in fact been confined to revision of the work of the others. It is a good arrangement, this kind of co-operative translating, as shown a short time ago in the Oxford rendering of Lotze's *System*. One might only wish that the present editor had not so strictly limited himself to establishing uniformity of technical terms and phrases. In point of "literary form," which he professes to have also kept in view, more breaking-up of involved sentences would not have been amiss, for example, in the difficult part from Kant to Hegel. As to faithfulness, which after all is the main thing, the translation, so far as tested, comes out well from its execution under four eyes; though avoidable slips are not wanting (e.g., ii. 612, Why is *Richtung* given as "tendency" rather than the obvious 'direction'?). The editor has, not without reason, refrained from adding to Erdmann's bibliographical references, except to give supplementary information about works that were progressing when cited in 1878; but he might well have made some necessary corrections in his author's perfunctory account of later English thinkers (down to Hamilton). Though it is not an unconscientious effort that Erdmann makes to do justice to these thinkers, it is certainly not a successful one that, after Locke, brings Peter Brown into prominence but no Hartley (ii. 187), and then (ii. 277), with incidental mention of Hartley's name, finds Priestley the more worthy to be signalled. But, indeed, it does not always fare satisfactorily with older and better-known names. The scheme of modern philosophy which finds no place for Berkeley between Locke and Hume, but, because of the label "Idealistic," puts him away,

after Leibniz, between the Wolffian and the Scottish or Introspectionist schools, is surely somewhat artificial. Nevertheless, no fancies about historical development can ever prevent Erdmann, when he has an important thinker in hand, from making observations that go straight to the heart of things. A word, finally, on his Appendix of "German Philosophy since Hegel," here printed as vol. iii. (fairly uniform in external size with the others, because of the thicker paper used). Though Erdmann declares that the more he worked at this Appendix the less satisfied he became with it, it is certain that no such bright and instructive a presentation has ever yet come from other hand: to the readers of the English translation it should be specially welcome.

The Science of Knowledge. By J. G. FICHTE. Translated from the German by A. E. KROEGER. With a Preface by WILLIAM T. HARRIS, Professor of the School of Philosophy, Concord, Mass.: Editor of the *Journal of Speculative Philosophy*, &c. London: Trübner & Co., 1889. Pp. xxiii., 877.

The Science of Rights. By J. G. FICHTE. Translated from the German by A. E. KROEGER. With a Preface by WILLIAM T. HARRIS, &c. London: Trübner & Co., 1889. Pp. 505.

These additions to the "English and Foreign Philosophical Library" are to be welcomed as part of the systematic effort that has been continued for some time past, not least by Mr. Harris,—who writes introductions to both volumes,—to make English readers acquainted with the results of the German philosophical movement from Kant to Hegel. The translations of the *Science of Knowledge* and *Science of Rights* do not appear to have seen the light previously to their present publication, although Mr. Kroeger has contributed translations of several other works of Fichte to the *Journal of Speculative Philosophy*. "The reflections of a Kant, a Fichte or a Hegel," Mr. Harris remarks, "will doubtless provoke dissent in the reader's mind,"—as will also some of the reflections in his own prefaces. "But they will already have served a good purpose when they have been the occasion for so much study as dissent implies."

A Student's Manual of Ethical Philosophy. Adapted from the German of G. VON GRZYCKI, Professor of Philosophy in the University of Berlin, by STANTON COIT, Ph.D. London: Swan Sonnenschein & Co., 1889. Pp. viii., 804.

The German original of this book has been so lately reviewed at length in *MIND* xiv. 278, that attention need only be drawn to the fact that it has found the best possible translator in Dr. Coit, who stands in special relation and sympathy with the author. A translation it is in the main, but there are some omissions (notably, the considerable criticism of Kant and Schopenhauer's doctrine of transcendental freedom, pp. 250-77 of the original), and also occasional substitutions. Deserving as it does warm welcome in its English dress, it is to be hoped that the book will not be prevented from reaching the general reader for whom it was intended, by the somewhat unfortunate title now chosen for it. For "student's manual" its very excellences do not well suit it. The author's good example in providing an index was worthy of being followed.

Through the Ivory Gate: Studies in Psychology and History. By WILLIAM W. IRELAND, M.D., &c. Edinburgh: Bell & Bradfute, 1889. Pp. vii., 811.

Under another fanciful title, and reversing the "History and Psychology" of his old sub-title, the author of *The Blot upon the Brain* (see MIND xi. 126), here gives, from the alienist's point of view, a circumstantial account of Swedenborg's life and mental activity (pp. 1-129), followed by shorter studies of the insanity of William Blake, Louis II. of Bavaria, C. J. Guiteau, L. Riel, G. Malagrida the Jesuit, and the two potentates, Theodore and Thebaw, of Abyssinia and Burma. It is a sufficiently varied collection of men all, according to the author, "led away by delusions or uncontrollable passions from the right comprehension of things or the right line of conduct". The sketches are eminently readable, and the first of them has, from the character and influence of its subject, a special interest.

Kant, Lotze and Ritschl. A Critical Examination by LEONHARD STÄHLIN, Bayreuth. Translated by D. W. SIMON, Ph.D. (Tüb.), Professor of Theology in the Congregational Theological Hall, Edinburgh. Edinburgh: T. & T. Clark, 1889. Pp. xxxii., 827.

Herr Stählin's work—the first two parts of which especially have an interest for philosophical readers—is an examination of the theology of Ritschl as founded on his theory of cognition, and of the foundation of this in the theories of cognition of Kant and Lotze. The present translation is put forth because the book deals with ideas that have already acquired influence in Britain and America and are likely to acquire more. The translator and his author alike aim at overthrowing the position "that knowledge proper is possible only with regard to sensuous phenomena and certain of their relations"; the super-sensuous sphere of existence that is the object of theology being, according to this position, not an object of knowledge. Theology, the translator would maintain, can be constructed as a genuine science on a basis of experience which is not less real because it is not sensuous. To overthrow the theoretical agnosticism, now gaining admission among theologians, which prevents the acceptance of this point of view in theology, it is above all necessary to go beyond the principles of the Kantian philosophy; for "the tap-root of all this semi-conscious agnosticism draws its chief nourishment, unknown to itself, from the soil of Kantism—from the theory of cognition which it is the aim of this book to hoist on its own petard". The first part of the book examines the Kantian philosophy; its first section being devoted to Kant himself (pp. 5-83), its second to Neo-Kantism (pp. 88-115). The second part deals with "The Philosophy of Lotze" (pp. 116-156), the third with "The Theology of Albrecht Ritschl" (pp. 157-288). There is an Appendix (pp. 289-327) consisting of notes. Kantism and Neo-Kantism alike, the author finds, result theoretically in scepticism, practically in "illusionism". Lotze's merits in the statement of the problem of philosophy deserve acknowledgment, but he has not succeeded in constructing a self-consistent system. "His theory of cognition in particular is full of contradictions, and ends in Scepticism." Philosophy, therefore, to provide a satisfactory foundation for theology, as well as in its own interests, must not simply develop the doctrines of Kant and Lotze but must go beyond them.

The Evolution of Sex. By Professor PATRICK GEDDES and J. ARTHUR THOMSON. With 104 Illustrations. London: Walter Scott, 1889. Pp. xvi., 322.

Of this book—which gives a very full account both of the facts of the evolution of sex and of the theories hazarded towards its explana-

tion—chap. xix. is devoted to "Psychological and Ethical Aspects". The authors arrive at the conclusion that, biologically, nutrition and reproduction, while they are primitively one, in the course of evolution become complementary and, to a certain extent, antagonistic functions. Psychologically, "the primitive hunger and love," hardly distinguishable at the outset but afterwards associated respectively with the two contrasting biological functions, "become the starting-points of divergent lines of egoistic and altruistic emotion and activity". Undue predominance of the expressions of either function brings on degeneration. The ideal that may be figured as the end of evolution is their harmonious blending. When the sexes have become differentiated, the rule is that "the general heredity is perpetuated primarily by the female, while variations are introduced by the male". In the development of altruism, however, the females have taken the lead; for here "the reproductive sacrifice was one of the determinants of progress".

Aristotelianism. "The Ethics of Aristotle." By Rev. I. GREGORY SMITH, M.A., LL.D., Edin., &c. "The Logical Treatises, the Metaphysics, the Psychology, the Politics." By Rev. WILLIAM GRUNDY, M.A., Head Master of Malvern College; late Fellow of Worcester College, Oxford. London: Society for Promoting Christian Knowledge, 1889. Pp. x., 228.

This book (now in its third edition, the first having appeared in 1886) is one of the series "Chief Ancient Philosophies," of which the first two volumes (*Epicureanism* by Prof. W. Wallace and *Stoicism* by Mr. Capes) were noticed in *MIND* vi. 145. The distinctive feature of the account here given of "Aristotelianism" is the effort to bring Aristotle's thought into relation with questions discussed at the present day, and to compare his doctrines with those of modern thinkers. It is interesting to read, but, when judgment is passed, a little tinged by the desire to point out the shortcomings of ancient as compared with Christian thought. Mr. Smith's work fills 98 pages, Mr. Grundy's the rest of the volume.

Individualism: A System of Politics. By WORDSWORTH DONISTHORPE, Barrister-at-Law, Author of *Principles of Plutology*, &c. London: Macmillan & Co., 1889. Pp. x., 898.

This is a book that contains a good deal of independent thought and vigorous writing, though it can hardly be said to furnish anything of the nature of a "system". The "Individualism" advocated by the author is the theory of government of which, as he holds, the "rough foundations" have been laid by Mr. Spencer, "who has contributed more to the scientific study of society than any other thinker—not even excepting Auguste Comte or John Austin". There are, however, in Mr. Spencer's attempted justification of the theory, vestiges of the doctrine of "natural rights," and this doctrine he finds himself obliged to reject; holding that the only test of law is "the welfare of the group". The welfare of the group, he contends, is best promoted by unlimited industrial competition. "The individualist believes that the enlightened and progressive self-interest of individuals will eventually, though gradually, bring about a higher order of society—higher, probably, than any human being now living could even conceive, much less plan." In working (within the limits of our power) towards this higher order of society, we have to consider what is the permanent tendency of civilisation. Civilisation, it is found, tends in the long run to increase individual freedom; and this tendency, in the author's view, can best be aided by minimising State-intervention.

Rosmini, a Christian Philosopher, as understood by his own School. By the Rev. STEPHEN EYRE JARVIS. Second Edition. Market Weighton : St. William's Press, 1888. Pp. 86.

The author first sets forth the principles of Rosmini's philosophy—especially his principle that the innate and indeterminate idea of being or existence is the foundation of all our ideas. Next he proceeds to point out the consequences of those principles, as applied “in defence of those vital truths, both natural and revealed, which form the common inheritance of Christianity”. Short papers are appended on the *Psychology* (pp. 68-9) and *Maxims of Christian Perfection* (pp. 69-76). Lastly, there is a classified index of Rosmini's works (pp. 77-86).

The Ruling Principle of Method applied to Education. By ANTONIO ROSMINI SERBATTI. Translated by Mrs. WILLIAM GREY. Boston : D. C. Heath & Co., 1887. [London : Isbister & Co.] Pp. xxv., 368.

This excellent translation of Rosmini's fragment on Pedagogy—published two years since in America but only now obtainable in England—demands attention both on account of the interest of the work itself and because of the remarkable agreement of Rosmini's position—arrived at independently and almost contemporaneously—with that of Froebel. The coincidences of Rosmini's thoughts with those of Froebel's more developed system (which has been made known in England especially by Miss Shirreff) are pointed out by Mrs. Grey in her notes; attention having been drawn in the preface to the general agreement of principle. This agreement is in the contention by Froebel and Rosmini alike for a “natural” system of education—that is, a system that encourages the powers of the child to unfold themselves in the order in which, psychologically, they tend of themselves to develop. Starting from this principle, both thinkers arrived at the view that perceptive activity is to be made the beginning of instruction. “Ordered and constructive play,” occupations providing an outlet for originality, music and dramatic stories are parts of both systems alike. According to Rosmini, in teaching children how to classify things, we must not proceed from the individual thing upwards by gradual stages to the most extensive classes of things, but—after the perceptive basis has been gained—must teach first the words that stand for the most extensive classes. The intermediate classes are afterwards to be filled in by descending from these last; for this is everywhere the path that the mind spontaneously takes. In this process, it is always the child's conceptions and not our own that are to be kept in view. Similarly, in moral education it is the moral conceptions the child is capable of forming at each stage that are to be appealed to; abstract rules that regulate the lives of adults but are not intelligible to the child are not to be laid down for his guidance: the child is to be guided by what are, in a sense, *his own* rules. “It follows that the child must always be considered as a moral being, for such he always is; but, at the same time, the form and nature of his morality at each stage of childhood has to be investigated.” The investigation as carried out by Rosmini is equally remarkable for its penetration and sympathy. His conclusion as to the general method of moral education is in close agreement with his view of intellectual education. In both alike the principle is that the natural impulses and interests are to be appealed to in the order of their spontaneous growth. An observation that is developed in a very interesting way is that of the boundlessness of the credulity of children (and of primitive men) and its gradual limitation by experience

(pp. 285-245). Everywhere in this fragment Rosmini's psychological insight manifests itself through his scholastic distinctions of "orders of cognitions," &c. These, if they hinder rather than help the exposition of the real matter he has to convey, throw interesting light on his general system of thought.

Philosophia Ultima, or, Science of the Sciences. Vol. I. An Historical and Critical Introduction to the Final Philosophy as issuing from the Harmony of Science and Religion. Third Edition, Abridged and Revised. Vol. II. The History of the Sciences and the Logic of the Sciences. By CHARLES WOODRUFF SHIELDS, D.D., LL.D., Professor in Princeton College. London: Sampson Low, 1889. Pp. x., 419; vi., 482.

The first of these volumes is the third edition of a work noticed in MIND iii. 427. It has been somewhat abridged by transference of parts to the second volume—already projected on the publication of the first, and containing the development of a scheme of the arts and sciences then projected. The whole is the outcome of the author's view summed up in the phrase—"the umpirage of philosophy between science and religion". With the aim of working towards such a philosophical reconciliation as he now attempts, he had published in 1861 a brief essay entitled *Philosophia Ultima*, together with a corresponding scheme of academic studies. For it is from the Universities, in his view, that the reconciliation must proceed. "It is by means of academic training alone that the whole social organism can be reached and cured of its present vicious and morbid action." The teaching of Christianity and the teaching of the sciences having fallen apart, the unity of Christian culture is to be restored by the confrontation of the results of science with theological doctrines and the constitution, from the philosophical point of view, of a single body of knowledge of which "the human and the divine factors" shall be maintained in correlation. In pursuance of the author's scheme, a chair of instruction was secured in the College of New Jersey in 1865. The volume formerly noticed, and now the present two volumes, contain—along with other matter—the results of his academic activity spread over all the years since. The contents of the new volume are:—Introduction. The Aim and Scope of Philosophy. Part i. Philosophy as the Science of the Sciences. Ch. 1. The Purification of the Sciences; 2. Survey of the Sciences; 8. The Science of the Sciences. Part ii. Philosophy as the Art or Logic of the Sciences. Ch. 1. Logic of the Empirical Sciences; 2. Logic of the Metaphysical Sciences (Evidences of Theism, Natural Theology, Natural Religion and Revealed Religion); 8. Logic of the Science of Sciences (Canon I. Reason and Revelation are Complementary Factors of Knowledge in each of the sciences. Canon II. The Province of Revelation expands as that of Reason contracts in the ascending scale of the sciences. Canon III. The reciprocal action of Reason and Revelation throughout the Sciences involves the indefinite expansion of human science towards divine omniscience). These indications may serve for the author's general point of view. His writing, throughout the two large volumes, is suffused by much warmth of human interest, and the all-comprehensiveness of his reading is truly remarkable.

Fundamental Problems. The Method of Philosophy as a Systematic Arrangement of Knowledge. By Dr. PAUL CARUS. Chicago: The Open Court Publishing Company, 1889. Pp. 267.

The Editor of *The Open Court* here republishes a series of essays that

have appeared in that Journal. Prefixed to the volume are extracts from Marcom Aurelius giving a summary of the Stoical view of man and of the universe. The author seeks to develop on the lines of modern science and philosophy a similar monistic conception and to found on it an ethical doctrine according to which "individuals are moral in so far as they conform with the Cosmos, in so far as they become one with the All and conform to its order, or, humanly speaking, as they obey the laws of the whole". This ethical doctrine founded on Monism he would call "Meliorism" because progress is the result of obedience to the laws of the Cosmos; these being summed up in the law of Evolution.

The Problem of Personality. Thesis presented for the Degree of Doctor of Philosophy at Cornell University, June, 1889. By ELIZA RITCHIE. Ithaca, N.Y.; Andrus & Church, 1889. Pp. 42.

The doctrine of the personality of God, the author contends, is not incompatible with the modern theory of the thoroughgoing parallelism of physical and mental events. The material concomitant of the divine personality may be held to be the universe as a whole.

Handbook of Psychology. "Senses and Intellect." By JAMES MARK BALDWIN, Ph.D., Professor of Philosophy in Lake Forest University. New York: Henry Holt & Co., 1889. Pp. xiii., 848.

Prof. Baldwin (now transferred to the chair of Logic and Metaphysics in the University of Toronto), after appearing some years ago as translator of Prof. Ribot's book on contemporary German psychology (see MIND xi. 489), here issues the first part of a psychological exposition of his own. The second part will deal with the Emotions and Will. In the meantime he suggests the use of Dr. McCosh's *Motive Powers* in connexion with the present work for class-room instruction. This indicates his general position, which is that of a follower of Dr. McCosh, with a general willingness to take up all results of scientific psychology that can be incorporated in the traditional scheme, philosophical and psychological. Philosophical realism is met with early in the volume, where a "presentative" element is found in sensation by which an immediate knowledge of objects is given. A kind of "nativism" (as the author himself calls it) is professed as regards the acquirement of the perception of space. Towards the end of the book we encounter the doctrine of "the presence of necessary rational principles in the mind," in the form of "intuitions" involving many momentous truths. In pure psychology a form of the Faculty-doctrine is upheld. "Faculty," however, the author says (p. 85 n.), properly restricted, is synonymous with "function". Thus, for example, there are three "faculties or functions" of Intellect, Feeling and Will. We are also told of the faculty or function of Apperception, &c. It is interesting to see the Scholastic petrification of Aristotle, which in various ways has been handed on or restored in modern times, thus (though imperfectly) breaking up under the influence of independent thought or new knowledge; and Prof. Baldwin, like his teacher Dr. McCosh, but to a greater extent, is able to incorporate with his scheme the results of much recent work, especially in psychophysics. It is interesting to note the terms in which he accepts the "universal and uniform connexion" of mental phenomena with the bodily organism:—"The ultimate laws of psychology must find their completion in the psychophysical connexion, since a complete explanation of a phenomenon must include its cause and essential conditions. This being true, and the law of conservation of energy holding in brain activities, we are led to

the high probability that all mental acts have a physical basis. The purely mental in consciousness is therefore psychophysical in fact, and the subjective law of such phenomena must yield in generality to the psychophysical laws which include all mental phenomena in fact. With any other supposition, we destroy the unity of mind, since, with the lower operations governed by laws of mind and body in their relation, and the higher by laws of mind without relation to body, how could the two systems of laws be held in harmony?" To this passage it certainly cannot be objected that the parallelism of physical and mental processes is not sufficiently recognised. On the question of psychological method—as might be expected in this case from the tradition he upholds—Prof. Baldwin clearly affirms that introspection, however it may have to be supplemented, must always remain the fundamental psychological method. "The ultimate basis," as he says (p. 19), "of psychological interpretation and construction, is the experience of the individual, in so far as it has universal meaning." The order of topics, which in this kind of book has a special significance, is as follows:—Introduction: Nature of Psychology (ch. 1). Psychological Method (ch. 2). Classification and Division (ch. 8). Part i.: General Characteristics of Mind. Consciousness (ch. 4). Attention (ch. 5). Part ii.: Intellect. Division of the Intellectual Functions (ch. 6). The Apperceptive Function; Presentation; Sensation (ch. 7). Perception (ch. 8). Representation; Memory; Retention and Reproduction (ch. 9). Recognition and Localisation (ch. 10). Combination; Association (ch. 11). Imagination (ch. 12). Illusions (ch. 18). Elaboration; Thought (ch. 14). The Rational Function; Reason (ch. 15). The book includes catholic directions as to further reading on the subjects treated, and should prove of good service to students.

Monism or Advaitism? (An Introduction to the Advaita-philosophy read by the light of Modern Science.) By MANILAL NABHUBAI DIVVEDI, Professor of Sanskrit, Sa'malda's College, Bha'vnagar. Bombay: Subodha-Praka's'a Press, 1889. Pp. 104.

This is a very interesting contribution to the history of Indian philosophy. "Advaitism" (non-duality) is the name given to the monistic doctrine developed most explicitly by a school of thinkers of whom the author does not profess to determine the exact date, though he holds that their thought is last in order of development. The doctrine of "Monism" or "Advaitism" (whichever we choose to call it) he regards as expressing the essential doctrine of early Aryan religion, in which was involved the notion of an immanent unity of nature. Through this doctrine—which in philosophy simply passed from the implicit to the explicit stage—religion and science were enabled to exist and develop side by side, instead of falling into conflict, as in Europe, where their mutual hostility is explicable from the opposition between the Aryan notion of immanence, embodied in science, and the Semitic notion of a transcendent Deity, embodied in Christian theology. Modern European "Monism" is thus a return to the primitive unity of Aryan science and religion; "Advaitism" being its philosophical anticipation. In setting forth the stages of thought that led to "Advaitism," the author seeks to bring out points of resemblance between modern doctrines of Evolution and the Indian doctrines; even finding that these contain anticipations of special scientific theories, and that Indian philosophy made "the first rational attempt at a mechanical explanation of the Universe". Less stress perhaps ought to have been laid on the resemblances in points of detail, which for the most part can only be accidental; and unless

"mechanical" is taken as equivalent to "necessary," it does not seem possible to uphold the identity, even in general character, of Indian Monism and the Monism of modern scientific writers such as Haeckel. Indeed, it can hardly be made out that the Monism of the Indian thinkers discussed is naturalistic (not to say mechanical) at all. The author's own expositions seem at least to be more easily reconcilable with the view that regards it as a theory of the derivation of nature—essentially by some kind of lapse—from a spiritual unity. This, although, of course, it is equally to be distinguished from the doctrine of a transcendent cause of the world, is precisely the opposite of the doctrine that makes the unity of mind the culminating point of an evolutionary process, whether that process is regarded as "mechanical" or not. These criticisms, however, do not affect the point that the Indian philosophers did arrive at a Monism of their own—perhaps philosophically superior to some modern doctrines. It is a merit of the author's exposition that he sets forth the systems described so impartially that the reader is able to see, from his exposition taken by itself, exactly how far they support his thesis. The rejection of the idea of Creation by the Indian philosophy he has very well brought out.

Education et Hérité. Etude sociologique. Par M. GUYAU. Paris: F. Alcan, 1889. Pp. xvi., 806.

This other posthumous work, following upon *L'Art au point de vue sociologique*, noted in MIND No. 58, p. 600, completes the series of sociological studies carried through by one of the most ardent and untiring of thinkers. It deals with the antinomy between the power ascribed to education on the one hand and to heredity on the other. For Guyau it is a true antinomy, reducing the moralist and the politician alike to impotence, if the effects of heredity are beyond remedy. He would solve the difficulty by bringing "suggestion" into play. In his view, neuropathic suggestion is only an aggrandised form of a normal process; education itself being "un ensemble de suggestions systématisées". The chief problems of physical, moral, æsthetic and scientific education are then in turn considered, from the higher point of view of nationality of race. Critical Notice of the two posthumous volumes, taken together, will follow.

La Psychologie de l'Effort et les Doctrines contemporaines. Par ALEXIS BERTRAND, Professeur de philosophie à la Faculté des Lettres de Lyon. Paris: F. Alcan, 1889. Pp. 208.

Prof. A. Bertrand here discharges part at least of the farther service which he spoke of rendering to Maine de Biran's memory and fame when, two years ago, he brought to light for the first time the various notable pieces collected in the volume *Science et Psychologie* (see MIND xii. 625). He had then to postpone publication of the correspondence, to which he had access, carried on by Biran (as he now more shortly calls the great French thinker) with Ampère, Cabanis, Destutt de Tracy and others. That correspondence he still leaves unpublished, but he draws freely upon the letters that passed with Ampère—and, to some extent, also upon what passed with the others—in order to throw light upon some more unpublished texts of Biran's which have a special bearing upon questions that are being hotly argued among psychologists at the present time. Chief of these is the question as to the true psychological interpretation of "Muscular Effort," and this is made the central topic of the little volume (pp. 66-125). The new elucidation which is here afforded of the fundamental conception of Biran's thought, as

worked out in concert with his scientific friend Ampère, has the way prepared for it in two prior chapters, "Psychological Sense" and "The first French Theory of the Unconscious"; while two concluding chapters follow on "Biranism applied to Education" and on "Ampère's Metaphysical Theory of Relations". Throughout, one gets the impression that Biran was indeed fortunate in having a man of Ampère's depth to communicate with, and in getting from him stimulus not less real when they agreed (as they generally did) than when they differed (as sometimes happened). Prof. Bertrand, in his pregnant and brightly-written chapters, has been able to do an act of justice to the great physicist, as well as bring into view the unique interest attaching to his own master, Biran, in the history of French psychology. Nor does he judge wrongly as to the importance, still in these days, of Biran's positive psychological results and applications. As regards the particular *crux* of the Sense of Effort, it was high time that there should come some counterblast to the chorus of French approval with which Prof. W. James's celebrated memoir (see MIND v. 582) has so long been received. If approval is still as freely accorded as it is by Prof. Pierre Janet in *L'Automatisme psychologique* (reviewed above), account is now to be taken not only of M. Fouillée's most recent stroke on the other side (see below, p. 150), but also of all the shrewd and pointed arguments which Prof. Bertrand here urges against Prof. James in the course of his exposition of Biran's and Ampère's joint reflections on the subject.

Le Réalisme de Reid. Par LIONEL DAURIAC, Professeur à la Faculté des Lettres de Montpellier. Paris : F. Alcan, 1889. Pp. 86.

The author traces Reid's doctrine of external perception to his metaphysical conception of substance and its qualities. This philosophical aspect of the doctrine, he thinks, has been somewhat neglected. Discussing the relations of Brown and Hamilton to Reid, he finds that Brown's theory of "perception by natural signs" was really developed from a part of Reid's principles, but that it leads to "theoretical idealism," and would therefore have been repudiated by Reid, who, if he had been called on to choose, would have decided for Hamilton's "natural realism". This doctrine of Hamilton's, it is true, is intrinsically of no value; but, in maintaining it against Brown, Hamilton showed himself the most faithful disciple of Reid.

Etudes Sociales. Par CHARLES SecrÉTAN. Paris : F. Alcan, 1889. Pp. iii., 389.

Essays on social subjects ("Les Réformes nécessaires," "La Journée normale," "Le Luxe," "Des Rapports entre l'Economie politique et la Morale"), from the general point of view of the author's work, *La Civilisation et la Croyance* (see MIND xiii. 298), but with more insistence on the necessity of legislation—over and above the moral transformation of a greater or less number of individuals—in order to bring about the social changes advocated. Socialism is condemned on the ground that it is incompatible with liberty and that equality of material conditions is not an ideal to be aimed at; but the view is rejected that would confine the action of the State—at least in present circumstances—to the enforcement of contracts.

Principes de Philosophie morale, suivis d'Éclaircissements et d'Extraits de Lectures conformes aux Programmes de l'Enseignement secondaire spécial (6e Année), de l'Enseignement secondaire des jeunes filles, et des Ecoles normales primaires. Par JULES THOMAS, Ancien élève

de la Faculté des Lettres de Paris, Professeur agrégé de Philosophie au Lycée d'Annecy. Paris: F. Alcan, 1890. Pp. viii, 864.

The special aim of this text-book of moral philosophy is described in the title. Its philosophical doctrine is in general agreement with that of M. Renouvier, from whose works frequent extracts are made. The illustrative extracts, which are a feature of the volume, are not all philosophical; some being oratorical and some poetical. The three parts of the book deal respectively with the Principles of Morality (pp. 1-178), the Principles of Law or Right (pp. 179-816), and the Principles of Natural Religion (pp. 817-858). It seems to be very well adapted to its purpose, and has for outsiders a pædagogic interest.

GIUSEPPE CIMBALI. *La Volontà Umana in rapporto all' Organismo Naturale, Sociale e Giuridico*. Roma: Fratelli Bocca, 1889. Pp. 129.

An argument in support of a form of the social contract theory, regarded by the author as identical with that which was put forth in the 18th century by Spedalieri (see MIND xiv. 602). The "social contract" upheld is not an agreement supposed to have been historically made, but the "tacit and free contract" that all members of society are supposed to make by the mere fact of being members. The highest idea of the State attainable, it is contended against those who, grounding themselves on modern sociology, would wholly dispense with the conception of "rights," is the idea of it as "contractual or juridical".

Geschichte der neuern Philosophie. Von KUNO FISCHER. Neue Gesamtausgabe. Bd. II. *Gottfried Wilhelm Leibniz*. (Dritte neu bearbeitete Auflage.) Heidelberg: Carl Winter, 1889. Pp. xix., 622.

The present re-issue of Prof. K. Fischer's volume on Leibniz fills a blank that has very inconveniently been long left open in the revised and recast edition of his *Geschichte*, which has gone on appearing at intervals from 1878 (see MIND, vols. iv., v., viii., x.). The volume saw the light in 1888, but it now takes its place, under date 1889, in what is designated, with change of publisher, as a new collected edition of the whole work so far as yet completed (six volumes, from Descartes to Schelling). It was in 1867, more than twenty years ago, that the author last had Leibniz in hand, for second edition of the volume first published in 1855. The second edition was altered from the first less in the exposition of the philosophy than in the development given to the account of Leibniz' immensely varied activity through life, as also of his influence upon the leaders of the *Aufklärung* till Kant appeared on the scene. Now, again, the large changes made in the new edition affect but little the author's view of the philosophy. This remains what it was, save for verbal revision and some longer account of the stages of Leibniz' progress in thought as marked in his various writings. On the other hand, so much new matter has been interpolated about the untiring man's occupation with concerns of practical life, and more especially his relations with royal ladies, as traceable in his abounding correspondence, that, rather than delay the volume longer (or perhaps enlarge it beyond measure), the author has left out at the end all but the most general indication of the later fortunes of the philosophy. This falling-back from the attainment of the second edition will be much to be regretted, unless the omission (as is indeed suggested, if not expressed) is meant to be made good by supplementary treatment on a still more extended scale than before. If this should follow, it is not for the reader to quarrel with Prof. Fischer for having used his deft ability to fill out the biographical

picture with new details of more or less interest. One must, however, still regret that the biographical balance is not in the end better preserved than it is. There are some passages in Leibniz' life, such as his discovery of the differential calculus, here disposed of in three or four pages, which stood far more in need of careful and detailed consideration from an historian of philosophy than others to which whole chapters are devoted. It is a pity, too, when the volume was kept back so long, that the author has not, for the philosophy, made more use of the rich material which C. J. Gerhardt has first brought to light in his new edition of *Die philosophischen Schriften* (cp. MIND xiii. 812). Though this most valuable of all collections began to be published as far back as 1875, and had attained its projected size of six volumes before Prof. Fischer came out with his present vol. ii. in 1888, it is not mentioned at all among the editions signalised on pp. 318-22, is cited (the first vol. of it) only on two or three of the concluding pages (pp. 605 ff.), and is in the preface spoken of as if then (1888) there had appeared no more than the first three volumes—of Correspondence. With all this curious oversight, it is not surprising that Prof. Fischer (p. 815) passes on the traditional supposition that it was the so-called *Monadologie* that was written in 1714 for Prince Eugene, not, even supplementarily, referring to the demonstration given by Gerhardt that it must rather have been the other short compend, *Principes de la Nature et de la Grace*; but it is less intelligible how, in face of the epistolary evidence supplied as far back as 1875 by Gerhardt's first volume, he could still maintain his old view as to the influences that affected—or rather, according to him, did not affect—Leibniz' philosophical development. On the whole of this vexed, but also most interesting, question of development, whether before or after Leibniz had reached his central monadic conception, it is not too much to say that Prof. Fischer has now ceased to be at all a sufficient guide. But, at the same time, it is doing him no more than bare justice to say that his exposition of the philosopher's final doctrine remains still unapproached, for skill of reconciling statement and penetrative insight into essential meaning. The grasp of Leibniz' central thought which, from 1855, so many readers have first owed to him, their successors may now more effectively obtain from the twice revised pages of the present edition, which, it is to be hoped, will not, like the last, be suffered to get out of print long before a still better one is there to take its place.

August Comte, der Begründer des Positivismus. Sein Leben und Seine Lehre.
VON HERMANN GRUBER, S.J. Freiburg i. B.: Herdersche Verlags-
handlung, 1889. Pp. vii., 144.

Coming after Dr. M. Brütt's essay, *Der Positivismus, &c.* (see MIND xiv. 459), this small volume gives evidence of the more general interest which Comte's personality and work are at last exciting in Germany. Individual writers now and again, like Lange and Laas (to mention only the dead), have not overlooked the peculiar importance of the French thinker, but there has been no such recognition of Comtism, in speculation or practice, as we are familiar with in England for nearly half a century back. Father Gruber interweaves, with a remarkably comprehensive biography, a careful abstract of Comte's two chief works, made upon the originals. When it is mentioned that, for the biographical details, he not only takes full account of the extraordinary volume, the *Testament*, put into print in 1884, but has consulted the positivist *Revue Occidentale*, with all its curious supplementary information from Comtist disciples, down to the middle of the present year (1889), the interest of his

narrative may be imagined. Except that he does not seem to know of the disclosures in Comte's letters to his youthful friend, Valat (volume printed in 1870), there seems nothing that he has overlooked; and the result of his conscientious inquiries on all hands is a more fair and faithful account of the philosopher's life than any other single writer has yet given. The fairness is remarkable in one who is at heart so strong a religious partisan as he appears in incidental references to the wickedness of free-masonry and Bruno-glorification in Roman streets. While many incidents of Comte's life, as well as particulars of his doctrine, may easily be fastened on for condemnation or ridicule, Father Gruber, though quick to note the incongruities or worse, never indulges in cheap ridicule, and when he condemns does it always with discrimination. His general respectfulness towards Comte leaves him free to hint a more unfavourable judgment on the uncompromising agnostic spirits that have taken the place of Comte with a later generation, and may possibly spring in part from this dialectical motive: anyway, a Catholic ecclesiastic can always find points of contact with the high priest of *such* a religion of humanity as Comte, with the Catholic model always in his head, was ambitious to found. In this connexion may be noted the rather circumstantial account that the Jesuit writer gives of the singular overtures which, shortly before his death, Comte made to the Father-General of the Order for common spiritual action between them, with degradation of the Pope to the status of simple Roman bishop as one step by the way! As for later 'positivists,' whether under Comte's influence or not, Father Gruber writes of them—as also of Comte's predecessors—with his wonted breadth of information. He has read most of the discussion that has gone on, in periodical literature or otherwise, as to the relation of later English thought to Comte; and might be said to know the whole ground, if only he had acquainted himself, at least more fully, with the Comtist religious movement in England,—and especially with the differences that have rent the English (and, to a less degree, the French) following into two sects. Finally, it should be added that his incidental judgments on Comte's philosophical ideas are all marked by superior intelligence; while the general epilogue (of three or four pages) contains an interesting vindication of Catholic doctrine against positivism of whatever hue.

Grundriss des Systems der Philosophie als Bestimmungslehre. Von LUDWIG FISCHER. (Mit graphischen Darstellungen.) Wiesbaden: J. F. Bergmann, 1890. Pp. 122.

Introductory to a projected systematic work on philosophy. That which is primarily given in knowledge, according to the author, is "determination" (Bestimmung). Hence philosophy may be defined as the "doctrine of determination". The highest principle of determination is "absolute reciprocity" (die absolute Wechselwirkung). Having arrived at this result, the author seeks to define the various philosophical points of view (including his own) by a new system of symbolism; finally going on to a doctrine of man as formed by the reciprocal action of "substances of lower order," and of society as formed by the reciprocal action of individual men.

IMMANUEL KANT's *Kritik der reinen Vernunft*. Mit Einleitung u. Anmerkungen herausgegeben von Dr. ERICH ADICKES. Berlin: Mayer u. Müller, 1889. Pp. xxvi., 723.

The author of Kant's *Systematik als systembildender Factor* (see MIND xiii. 141) here applies the principles of that acute essay to the editing in

detail of Kant's immortal work. His object is, while providing the student with a more carefully emended text than has yet been put forth, and doing it (with his publishers' help) in bold clear type on good paper at the astonishingly low price of three shillings, to give at the same time, in introduction and footnotes, the main results of all the inquiry into the gradual development of Kant's thought which, by others or himself, has been so fruitfully carried on of late years. His own special views naturally get chief prominence, but these, in spite of what is subjective in them, being in the main so inherently probable, are full of instruction even to the elementary student. By comparison of the editions pursued into minutest detail throughout, also by drawing upon the records now accessible of Kant's perplexities during the ten years from 1770, Dr. Adickes is able to distinguish with good effect between the essential and the accidental in Kant's philosophical achievement; also to show (according to his own special idea) what an amount of out-structure Kant had the way of rearing upon a basis of mere scaffolding, applied from without to the real edifice after this had been built up from within. Nothing could be more instructive to the student than to compare the notes in this edition with such a commentary on Kant's work as (say) Prof. Mahaffy supplied some years ago and has just now reproduced (see *MIND* No. 56, p. 594). Except for the account taken of the salient differences between the two editions of 1781 and 1787 at certain well-known points, the student would suppose from Prof. Mahaffy's exposition that all he reads in the *K. d. r. V.* was thought out by Kant exactly in the order and in the form of the printed book; yet nothing could be farther from the truth. With the recognition of this fact, a great deal of more or less imposing demonstration (from other commentators as well as from Prof. Mahaffy) of Kant's absolute infallibility in method and results assumes a somewhat different aspect. But it is not only the beginner that may learn from the labours of Dr. Adickes. His edition is sure to be henceforth kept near the hand of all Kantian scholars, whether or not they may think him uniformly successful in his contentions, great and small.

Die Philosophie des Thomas von Aquino kritisch gewürdigt von J. FROH-SHAMMER. Leipzig: F. A. Brockhaus, 1889. Pp. xxii., 587.

The author has already done much work, both original and historical, which has been noticed in former numbers of *MIND*. His present volume contains an exposition and a critical estimate of the philosophy of Thomas Aquinas, under the heads of (1) The Thomistic Doctrine of Knowledge, (2) Relations of Philosophy and Theology according to Thomas, (3) Philosophic Theism of Thomas, (4) Thomistic Nature-philosophy, (5) Thomistic Psychology, (6) Ethics and Politics of Thomas. There is an Appendix (pp. 512-587) on "The Eternity of the World". The book is based on long study. It has to some extent a polemical purpose; being directed against the Neo-Scholastic representation of the Thomistic system as, in essentials, the final outcome of philosophic thought.

Der Begriff der Wahrnehmung. Eine Studie zur Psychologie und Erkenntnisstheorie. Von Dr. WILHELM ENOCH. Hamburg: H. Carly, 1890. Pp. 102.

An attempt to mark off 'perception,' regarded as a mental power, from other 'powers'. The author bases his psychology on the distinction between intuition and thought, which he adopts from Kant, whose psychological indications he tries to follow generally; Kant's psychology

having been, as he thinks, unjustly rejected by Herbart. Perception he finds to be the 'intuition' of present objects. The intuition of absent objects is 'memory'. 'Sensation' is a 'sub-species' of perception. As opposed to perception, it is "the simple, the physical or unconscious, the subjective, the internal"; perception being the composite, conscious, objective and external.

Das Grundproblem der Erkenntnistheorie. Eine phänomenologische Durchwanderung der möglichen erkenntnistheoretischen Standpunkte. Von EDUARD VON HARTMANN. Leipzig: W. Friedrich, 1889. Pp. viii., 127.

A second, systematic part added to the author's *Kritische Grundlegung des transzendentalen Realismus*, of which the third edition was mentioned in MIND xi. 187; the book having been reviewed in i. 407. After criticising "Naïve Realism" (pp. 1-40) and "Transcendental Idealism" (pp. 40-112), the author goes on to a brief restatement of his doctrine of "Transcendental Realism" (pp. 112-127).

Inwiefern ist Leibniz in der Psychologie ein Vorgänger Herbarts. Ein Beitrag zur Geschichte der Psychologie. Von Dr. JOHANNES BARCHUDARIAN. Jena: Frommannsche Buchdruckerei (Hermann Pohle), 1889. Pp. 51.

The influence of Leibniz on Herbart in metaphysics being generally acknowledged, the author has set himself to inquire how far Herbart was directly influenced by Leibniz in psychology. First, however, he goes over the agreements and differences of the two thinkers in metaphysics. The most important point insisted on as regards their relations in psychology is the direct derivation of Herbart's obscured presentations "below the threshold" from Leibniz's "petites perceptions". The historical connexion of doctrines is in general very well set forth; though there is some exaggeration in the remarks, for example, that Leibniz was the first to lay aside the faculty-doctrine (p. 8), and that Herbart was the first to constitute psychology a completely independent science (p. 6).

Beiträge zur Theorie der mathematischen Erkenntnis. Von KONRAD ZINDLER. Mit vier Abbildungen im Texte. Wien: F. Tempsky, 1889. Pp. 98.

The chief point of this memoir (originally published in the *Sitzungsberichte* of the Vienna Academy of Science) is the reduction of properly mathematical judgments to "relations of incompatibility," defined (p. 16) as evident negative judgments on the co-existence of the foundations of relations (their condition being that the foundations cannot be thought together). These judgments, in the author's view, are not "empirical in the ordinary sense," for they are founded on "the experience of internal perception," and not on "the experience of natural science," which alone is usually called empirical,—its characteristic being to decide between possibilities that can equally be represented though only one of them is realised. The conception of the mathematical axiom is to be extended so as to include all the "evident propositions" of mathematics, whether they can be deduced from others or not. Nothing is gained by trying to reduce the axioms to the smallest possible number. For constant reference to intuition is required in the proof of propositions; and it is well to recognise this by not seeking to limit the number of axiomatic truths, but admitting as such all that from time to time have been assumed—for example, in the course of geometrical constructions as practised by the moderns.

Die psychologische Forschung und ihre Aufgabe in der Gegenwart. Akademische Antrittsrede von Dr. HENRICH SPITTA, a. o. Professor der Philosophie an der Universität Tübingen. Freiburg i. B.: J. C. B. Mohr (Paul Siebeck), 1889. Pp. 86.

The author points out the general bearings of psychology, and defends the introspective method as furnishing the ground for all inferences drawn by other methods.

Ethisches Wissen und ethisches Handeln. Ein Beitrag zur Methodenlehre der Ethik. Von Dr. PAUL HENSEL, Privatdocent an der Universität Strassburg i. E. Freiburg i. B.: J. C. B. Mohr (Paul Siebeck), 1889. Pp. iv., 48.

In this interesting essay Dr. Hensel of Strassburg endeavours to show the true relation between the three ethical methods of Evolutionism, Utilitarianism and Intuitionism. By Evolutionism he means the history of ethical forces, in whatever form—Fichte's, Hegel's, or that of the Darwinians; and he regards it as a sufficient explanatory theory, but insufficient to supply a practical test of right and wrong. This test Utilitarianism supplies. The point of that doctrine is that it requires that every act should be generally applicable, and not a mere device to suit a particular individual: its motto is, 'Be normal'. It is thus a normative method, while Evolutionism is only a genetic method. But if we ask not simply for a test to justify right action, but for a guiding principle or motive, then Intuitionism claims its rights. Only conscience can determine moral value; and the one imperative of conscience is 'Thou shalt,' which receives its special application from special circumstances. Practical action, and the theoretical treatment of it, thus fall apart. On pp. 19, 20 there is an interesting treatment of the connexion between law and morality. The author, it will be observed, takes Evolutionism in a limited sense; few evolutionist systems do not give at once a practical standard of right and a theory of its origin.

Beiträge zur experimentellen Psychologie. Von HUGO MÜNSTERBERG, Dr. phil. et med., Privatdocent der Philosophie an der Universität Freiburg. Heft 2. Freiburg i. B.: J. C. B. Mohr (Paul Siebeck), 1889. Pp. 284.

Dr. Münsterberg did not fail to keep time with the continuation of his *Contributions to Experimental Psychology* (and even to surpass in size his first quarterly instalment), but, by an unfortunate mischance, his part ii. has been so delayed in transmission that it is now possible only to chronicle its contents in the barest manner. Four researches are now given: on Time-sense (pp. 1-68); on Fluctuations of Attention (pp. 69-124); on Eye-measure (pp. 125-81); on Space-sense of the Ear (pp. 182-284). They shall all receive due attention later on; his earlier researches on Voluntary and Involuntary Combination of Ideas (see MIND No. 56, p. 607) having first to be considered more at length.

The following NEW EDITIONS have been received:—

A Study of Religion: its Sources and Contents. By JAMES MARTINEAU, D.D., &c. Second Edition, revised. Oxford: Clarendon Press, 1889. Pp. xxxii., 892; vi., 892. [For this edition, brought down, like the second of *Types of Ethics*, from large to small octavo, the author has written a new preface, in which he replies especially to Prof. Flint, his

critic in MIND xiii. 590, vindicating the philosophical character of his *Study*, between modern 'science of religion' on the one hand, and 'theological apologetics' on the other.]

(1) *Bacon's Novum Organum*, &c. Second Edition, corrected and revised. Pp. xxii., 629. (2) *The Elements of Inductive Logic*. Fifth Edition, corrected and revised. Pp. xxv., 865. By THOMAS FOWLER, D.D., &c. Oxford: Clarendon Press, 1889. [In both volumes many minor alterations and additions have been made, rendering them still more serviceable than before to the different classes of students for whom they are intended. Some questionable statements in (1), remarked upon in MIND iv. 125, might with advantage not have been left unmodified.]

Microcosmus. By HERMANN LOTZE. Translated by ELIZABETH HAMILTON and E. E. CONSTANCE JONES. Third Edition. 2 Vols. Edinburgh: T. T. Clark, 1888. Pp. xxiv., 714; xi., 740. [It is a fact worth noting that this excellent translation should have reached a third edition within three years from its first appearance.]

RECEIVED also:—

J. H. Ferguson, *The Philosophy of Civilisation*, The Hague, Nyhoff (London, Whittingham), pp. xx., 881, ix.

W. A. Macdonald, *Humanitism: The Scientific Solution of the Social Problem*, London, Trübner, pp. xxii., 850.

F. Lagrange, *Physiology of Bodily Exercise*, London, Kegan Paul, Trench & Co., pp. xvi., 895.

E. B. Andrews, *Institutes of Economics*, Boston, U.S.A., Silver, Burdett & Co., pp. xii., 227.

J. H. Trench, *Form Study and Drawing in the Common Schools* (Educational Monographs of N. Y. Coll. for the Training of Teachers, ii. 5), New York (London, T. Laurie), pp. 145-92.

A. Grafé, *Etude sur quelques Paralysies d'Origine psychique*, Bruxelles, F. Hayez, pp. 121.

Th. Trede, *Das Heidenthum in der römischen Kirche*, Th. i., Gotha, F. A. Perthes, pp. 842.

Handlexikon für evangelische Theologen, 1te Lief., Gotha, F. A. Perthes, pp. 1-80.

P. Freyer, *Beispiele zur Logik, &c.*, 2te Aufl., Berlin, Weber, pp. 56.

NOTICE of some of these will follow.

IX.—FOREIGN PERIODICALS.

THE JOURNAL OF SPECULATIVE PHILOSOPHY.—Vol. xxi, No. 4. Leibniz—Critique of Locke (tr.). W. T. Harris—The Spiritual Sense of Dante's *Divina Commedia*. [An essay of over a hundred pages, containing a complete analysis of the *Divina Commedia* from the author's point of view. Having long sought for "a permanent truth in the poem," an "inner meaning" that would reconcile him to the outer form of the work of art, he here gives the results of his philosophical consideration.]

REVUE PHILOSOPHIQUE.—An. xiv., No. 10. P. Janet—Introduction à la science philosophique. v. La géographie de la philosophie. [On the shiftings of the geographical centre of philosophical study in Europe from the earliest Greek period to modern times.] Ch. Henry—Recherches psychophysiques : Le contraste, le rythme, la mesure. J.-M. Guardia—Philosophes espagnols : Gomez Pereira (ii.). Rev. Gén. (P. Gauthiez—Travaux récents sur Giordano Bruno). Analyses, &c. (G. J. Romanes, *Mental Evolution in Man*, &c.). Notices bibliographiques. Rev. des Périod. No. 11. G. Tarde—Le crime et l'épilepsie. [A criticism on Lombroso's theory of the special connexion of crime with epilepsy. The author finds no evidence of this connexion. More generally, his argument is directed against the theory of criminality as a form of insanity, which, though not the genuine thought of Lombroso or his school, is sometimes mixed up with it—occasionally, it must be admitted, by Lombroso himself. The aim of M. Tarde's criticism is to disentangle the idea of the criminal as an 'ethological' type—which is in reality the fundamental idea of the Italian criminological school—from theories of the insanity (carrying with it legal irresponsibility) of criminals. He also criticises some of Lombroso's generalisations; contending that the influence of heredity as compared with that of education and surroundings has been somewhat exaggerated. Essentially, however, his criticism is in the interest of the school itself whose work he has done so much to make known.] A. Binet—Recherches sur les mouvements volontaires dans l'anesthésie hystérique. [The result of these observations—on some hysterical patients, as the author expressly points out—is that there are two distinct types of voluntary movements. On the sensitive as compared with the insensitive side of the 'hemianæsthetic' patient, (1) the height of the curve of muscular contraction is greater, (2) the lines of ascent and descent are steeper, (3) the physiological reaction-time is shorter, (4) fatigue is sooner manifested. Connexion of these two types of movement with sensitiveness and insensitiveness respectively is not to be regarded as established; for sometimes the distribution is opposite. What is established is that two well-marked types of voluntary movement exist.] Korsakoff—Sur une forme des maladies de la mémoire. [Description of a form of amnesia observed in cases of "multiple neuritis," with an attempt at physiological explanation. Events that take place during the disease are forgotten as soon as experienced. In cases of recovery they are afterwards remembered, and even during the disease they have, as the author thinks, a kind of unconscious influence on the actions of the patient. He would explain the phenomena by supposing that the nerve-fibres—which are known

to become disorganised in multiple neuritis—are the apparatus of association. This ceases to function during the disease, but impressions continue to be stored up in the cells, and, when there is recovery, can at length be properly associated, and therefore remembered.] P. Regnaud—*Sur l'origine et la valeur de l'idée de racine et de suffixe dans les langues indo-européennes*. [An argument against the hypothesis that the words of Indo-European languages have been formed from isolated roots by agglutination. Roots are simply "abstract elements of language". They were distinguished, in Sanskrit, by the early grammarians of India for mnemonic purposes and for the sake of convenience of classification, not with a scientific aim. It has been the error of the school of Bopp to take the grammatical classification as having value for the discovery of origins.] Variétés (L. Marillier—Le Congrès International de Psychologie Physiologique de 1889). Analyses, &c. (J. Nichol, *Francis Bacon*; P. Carus, *Fundamental Problems*). Rev. des Périod. No. 12. A. Fouillée—Le sentiment de l'effort et la conscience de l'action. [This is an important article, as containing a decided protest by M. Fouillée against the doctrine of the exclusively 'afferent' origin of the feeling of effort. The positive doctrine here developed is that there are three distinct elements in the consciousness of muscular activity: one due to the skin, one to the actual movement of the muscles, and one to an initiating cerebral discharge. This last element, of 'efferent' origin, is the properly active feeling. Proof of the existence of feelings of afferent origin is evidently no disproof of the existence of this. Yet those who argue against 'feelings of innervation' confine themselves to giving proof of the existence of the afferent factors; assuming that if these are present they are alone present. The pathological facts are not conclusive either way. Cerebral phenomena being phenomena of action and reaction, is it likely (M. Fouillée asks) that consciousness corresponds exclusively to the passive, never to the active, side of nervous processes? An efferent discharge within the brain, he contends, is that which underlies mental effort, or "attention"—and this in addition to the ideal muscular feelings accompanying, e.g., represented articulations of words. In every act of will there is at once an *idea*, of (composite) afferent origin, and a "consciousness of action". This last is an entirely "subjective" factor, being (like pleasure and pain) not representable. None the less, it is a real feeling, and—however well physical science may get on without the notion of action—cannot be eliminated by the psychologist.] M. Walitzky—Contribution à l'étude des mensurations psychométriques chez les aliénés. [The most noteworthy result obtained is that, with the increase of maniacal agitation, the association-time diminishes as the time taken in choosing increases.] F. Paulhan—L'art chez l'enfant. [Reflections suggested by M. Perez's work, *L'Art et la Poésie chez l'Enfant*.] J.-M. Guardia—Gomez Pereira (fin). Analyses, &c. (*Scottish Metaphysics Reconstructed*, &c.). Rev. des Périod.

LA CRITIQUE PHILOSOPHIQUE (Nouv. Sér.).—An. v., No. 9. Berkeley.—*Traité des principes de la connaissance humaine*, traduit pour la première fois en français (iv.). . . G. Lechalas—La géométrie générale. [An attempt to give to the ideas of non-Euclidian geometry a rationalistic turn—as opposed to the empirical turn that has usually been given to them.] F. Pillon—Observations sur la classification des sciences de M. Herbert Spencer. [Comparison of Mr. Spencer's classification of the sciences with Prof. Bain's criticisms, especially in relation to logic and mathematics, leads the author to consider Plato's doctrine of Ideas;

there being in Plato's doctrine as applied to geometry—and derived from it—certain resemblances to what Mr. Spencer says as to ideal points and lines which have no real existence, and which real objects imperfectly illustrate. Comparing Plato's explanation of the conception of such ideal objects by a supposed reminiscence of what the individual has known in a previous existence with Mr. Spencer's explanation by "ancestral experience," M. Pillon finds that the latter explanation by no means replaces the former philosophically. For the experience of ancestors is not supposed to have been different in kind from ours; it is not "intelligible" as opposed to "sensible". Consequently no accumulation of it can explain the ideal character recognised by Mr. Spencer in geometrical definitions.] No. 10. Berkeley—*Traité des principes, &c.* (fin). C. Renouvier—Victor Hugo. Le poète et le songeur (fin). [In concluding this series of articles—full of interest all through—M. Renouvier points to "immortality, liberty, divine personality," as the central conceptions expressed by Victor Hugo. In reality they are incompatible with his optimistic fatalism, with the evolutionist doctrines "dont il s'est laissé insuffler par l'air du siècle"; but the influence of these last was superficial; the others remained with him the true basis.] . . . No. 11. Catéchisme laïque, ou les grandes inductions de la morale. L. Ménard—Le jour des morts. C. Renouvier—La philosophie de la règle et du compas, ou des jugements synthétiques *a priori* dans la géométrie élémentaire. [A discussion suggested by the paper contributed by M. Lechalas to No. 9. In the author's view, the geometry of non-Euclidian space is simply a "mathematical exercise," of which the suppositions are quite unimaginable though not contradictory. It is true that the axiom, or rather postulate, of parallels, can be contested: for it is not an analytical but a synthetical judgment; its denial does not involve a contradiction. In this, however, it is in the same position as the other fundamental indemonstrable relations on which geometry is based. The difficulties raised by "imaginary geometry" are therefore insoluble by ordinary rationalism (for ordinary rationalism supposes the fundamental propositions of geometry to be incontestable, and they have been contested without the commission of any error of pure logic). It is in Kant's doctrine of synthetic judgments *a priori* and in "the criticist theory of certitude" that their solution is to be found.] . . . [It is announced that the *Critique Philosophique* ceases to appear at the end of 1889. The *Année Philosophique*, critical studies on the movement of general ideas, by M. Pillon, is in preparation.]

RIVISTA ITALIANA DI FILOSOFIA.—An. iv. 2, No. 2. F. Bonatelli—Un nuovo libro di metafisica. [A review of Prof. J. Bergmann's *Vorlesungen über Metaphysik* (1886).] N. R. d'Alfonso—Il parlare, il leggere e lo scrivere nei bambini. [Traces (in principle) the acquirement by children of command over language from the indeterminate to the determinate, and from less to more complex conditions, first in the case of uttered vowels, syllables and words, then in the cases of reading and writing as successively superposed.] V. Poggi—Il suicidio in Platone. [Starting from a *Critical and Philosophical History of Suicide*, written by Appiano Buonafede (1719-1798) under the pseudonym of Agatopisto Cromaziano, goes on to an investigation of Plato's view of suicide. The conclusion is that (contrary to the ordinary account, but in agreement with an expression of opinion let fall by the eighteenth century writer) suicide is permitted by Plato in cases of necessity.] Bibliografia, &c. No. 8. V. Benini—Della osservazione psichica interna. [On the advantages and disadvantages of self-observation as a psychological

method, with rules for its conduct.] R. Bobba—Le apologie nei primi tre secoli della Chiesa. A. Nagy—Il Nyāya e la logica aristotelica. [Recommends a more express investigation than has hitherto been made of a relation conjectured to exist between Aristotle's logic and the logic of Indian philosophers.] Bibliografia, &c.

RIVISTA DI FILOSOFIA SCIENTIFICA.—Vol. viii, No. 8. F. de Sarlo—Il concetto moderno della pazzia secondo alcune recenti pubblicazioni. C. Hanau—Del riso e del sorriso. [Laughter is contagious and superficial; smiling is individual and profound.] Note critiche, &c. (E. Morselli—Le teorie dell' eredità secondo G. C. Vanini. Proposto di un monumento a G. C. Vanini). Riv. Bib., &c. Necrologia (Pompeo Dumolard). No. 9. A. Sormani—La nuova religione dell' evolucionismo. G. Cesca—Sul criterio della verità secondo le varie scuole filosofiche. [After a review of theories, arrives at the conclusion that, truth being agreement between consciousness and the phenomenal object of consciousness, its criterion is "perception judged by the intellect as normal and common to all men".] F. Gabotto—L'epicureismo italiano negli ultimi secoli del Medio-evo. [On the "Epicureans" of the thirteenth century, placed by Dante among the heresiarchs. The name, it is maintained, was probably a traditional name for those who were understood to deny the immortality of the soul, and therefore cannot be made a ground for the inference that within the Middle Age there was a philosophical school of followers of Epicurus. Those who were called "Epicureans" probably got their doctrine from Averroes. True Epicureanism does not appear till the Renaissance.] Questioni del Giorno (E. Morselli—Il "Museo psicologico" di Firenze). Riv. Anal. Riv. Bib., &c. No. 10. A. Piazzi—Le idee filosofiche, specialmente pedagogiche, di C. A. Helvétius. [Finds in the pedagogical doctrines of Helvétius the limitations of his psychology, but insists on his merit in bringing forward the idea of an education founded on psychological principles, and directed to the formation of the moral character as well as of the intelligence.] E. D. Marinis—Un filosofo positivista italiano: Andrea Angiulli. Questioni del Giorno (E. Morselli—I nuovi programmi dei Licei). Riv. Anal. Riv. Bib., &c.

PHILOSOPHISCHE MONATSHEFTE.—Bd. xxvi, Heft 1, 2. P. Natorp—Aristoteles und die Eleaten (i.). [A vindication of the Eleatics against what the author takes to be the misunderstandings of Aristotle.] Th. Lipps—Ästhetischer Litteraturbericht (i.). [Contains, along with acute criticisms of Hartmann, Schasler, Guyau and Mr. W. P. Begg, statements of the author's main æsthetic positions. He insists on the psychological basis of æsthetic science and on the necessity of carrying æsthetic inquiries into detail. His psychological theory of beauty is associational. Universally valid æsthetic judgments he places on the same ground as universally valid scientific judgments. For both alike the condition is that the appropriate experience should have been had. Discussing art in relation to its material and in relation to practical ends, he finds that æsthetic contemplation does not consist in abstraction from the real properties of its matter, but in assigning value to these so far as they have part in the immediate impression of the work of art. Different kinds of material (in the case of a statue, for instance) demand different kinds of workmanship. Art does not exclude practical ends: the condition of their presence is that the æsthetic impression should be got quite independently of any reference to the utility that is subserved. An object is the object of a purely æsthetic judgment, not

(as Schasler and Hartmann say) so far as it is regarded as mere appearance, but so far as it is regarded in itself without reference to any other reality except that which may be suggested by the immediate perception of it. Beauty in nature is to be explained by associations with the human form or with human life. To view nature aesthetically is to animate it and anthropomorphise it. The beauty of the human form, again, is to be explained, not by consideration of its separate parts by themselves regarded as mere forms, but by reference to the physical or spiritual life they express. It is their association with this that gives them beauty. Thus the ultimate ground of all beauty is in a thought, having relation to human life, that is associated (not casually for the individual, but intrinsically) with the immediate perception of the object.] Recensionen. *Litteraturbericht*, &c. (J. Dewey, *Leibniz's New Essays*; G. S. Morris, *Hegel's Philosophy of the State and of History*, &c.).

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE.—Bd. xiii., Heft 4. S. Hansen—Versuch einer Kritik des Mill'schen Subjectivismus. [The two chief defects of Mill's "subjectivistic" theory of the external world are (1) his substitution of a psychological investigation of the origin of belief in the reality of objects for a philosophical examination of its validity, (2) an ambiguity in his use of the term "possibility," which he sometimes uses in its strict sense and sometimes hypostasises so as to make "possible sensations" a kind of reality. Psychologically Mill's theory is true, but realism is true philosophically.] B. Kerry—Ueber Anschauung und ihre psychische Verarbeitung (vi.). H. Höffding—Ueber Wiedererkennen, Association und psychische Aktivität (i.). [The first part of a general investigation of mental association and its relations to "psychical activity," beginning with a rather minute examination of the fact of "immediate recognition" of mental states as having occurred before, and of the conditions under which this recognition takes place.] Anzeige. Selbstanzeigen, &c. (F. Tönnies, *Hobbes's Elements of Law and Behemoth*, &c.).

PHILOSOPHISCHE STUDIEN.—Bd. v., Heft 4. J. Merkel—Die Abhängigkeit zwischen Reiz und Empfindung (iii.). [Results partly confirming and partly supplementing Weber's law in the case of sound. A new formula is proposed for the dependence between sensation and stimulus, applicable to light and pressure (dealt with in the first two papers of the series) as well as to sound.] J. Schischmanow—Untersuchungen über die Empfindlichkeit des Intervallsinnes [The result first arrived at is that "sensitiveness to difference of tone is greater for diminution than for increase of the interval". This, however, has only been ascertained to be true in cases where the lower tone is the variable. Perhaps, then, the observed phenomenon depends on the separate tone rather than on the extent of the interval. Further investigation, the author thinks, might establish the proposition that "any raising of a tone is more easily apprehended than its deepening".] G. Martius—Ueber die scheinbare Grösse der Gegenstände und ihre Beziehung zur Grösse der Netzhautbilder. [It is first accepted as approximately true that "objects with the same visual angle appear of equal size; the apparent magnitude of objects seen under different visual angles increases and diminishes in direct proportion to the increase and diminution of their visual angle". The result of the present research is to supplement this by another proposition: "The same retinal image, seen at different distances (projected to different distances), corresponds to space-images of different magnitude, and the increase of magnitude is approximately proportional to the

distance".] E. Leumann—Die Seelenthätigkeit in ihrem Verhältniss zu Blutumlauf und Athmung. [Having conjectured that rapidity of mental processes is proportional to rapidity of circulation and respiration, the author finds experimentally that rhythmical intervals in the scanning of verse increase and diminish with the pulse-intervals, although there is not strict arithmetical proportion.] W. Brix—Der mathematische Zahlbegriff und seine Entwicklungsformen (i.). [All particular "number-concepts" are to be derived by successive determination from the highest concept—that of "manifoldness". The logical investigation of the conception must be preceded by its historical and genetic investigation. This preliminary part is contained in the two chapters now printed, which are entitled—"The Historical Development of the Conception of Number," and "The Psychological Forms of the Conception of Number".]

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE.—Bd. iii., Heft 1. A. Chiappelli—Per la storia della Sofistica greca. [Traces the influence of the antithesis of *φύσις* and *νόμος* on the development of Greek thought before and within the Sophistic period. Occupation with the problem presented by this antithesis is found to be the point of connexion between the earlier and the later Sophists.] J. Freudenthal—Zur Beurtheilung der Scholastik. [A vigorous confutation of some positions taken up by G. Kaufmann, who has maintained, not only that there were beginnings of independent thought in the Scholastic period (which the author admits), but that Scholasticism was "the creator of the idea of science as an independent power"!]

A. Gaspary—Zur Chronologie des Streites der Griechen über Plato und Aristoteles im 15. Jahrhundert. R. Stölzle—Descartes' Lebensende. [Gives a letter describing Descartes' last illness, conjectured, apparently on good grounds, to have been written by van Wulen, the physician who attended him.] F. Tönnies—Siebzehn Briefe des Thomas Hobbes an Samuel Sorbière, nebst Briefen Sorbière's, Mersenne's, u. Aa. (i.). [Only two letters of Hobbes are given in the present article. Remarks on the correspondence are deferred until after its complete publication.] L. Stein—Zwei ungedruckte Briefe von Leibniz über Spinoza. W. Dilthey—Aus den Rostocker Kanthandschriften. Jahresbericht (L. Stein, B. Erdmann, W. Dilthey, P. Deussen). Neueste Erscheinungen.

PHILOSOPHISCHES JAHRBUCH.—Bd. ii., Heft 8. G. Grupp—Die Anfangsentwicklung der geistigen Cultur des Menschen (iii.). J. Pohle—Der neueste Sturmlauf gegen die heidnischen Classiker u. gegen die humanistische Bildung überhaupt (ii.). [The modern attack on classical education is traced to aversion from ideals (which appears to the author to be connected with the prevalence of materialistic philosophy), to the spirit of revolt against authority, and (in part) to wrong methods of teaching and to defects in the advocacy of the classics by philologists.] M. Sierp—Pascals Stellung zum Skepticismus (ii.). [Recognitions of various "fundamental certitudes" are cited from Pascal's *Pensées* by way of argument against his being set down as a philosophical sceptic.] Recensionen und Referate. Philosophischer Sprechsaal (Th. Isenkrahe—Zur Kritik der thomistischen Erkenntnisslehre). Zeitschriftenschau. Miscellen und Nachrichten.

X.—NOTES.

PHILOSOPHY IN RUSSIA.

The appearance of the first Russian philosophical Review,¹ *Voprosy filosofii i psichologii* (the projection of which by the Moscow Psychological Society was referred to in MIND xiv. 818), gives occasion for making the English public acquainted with the state of contemporary philosophy in Russia.

At the end of the eighteenth and the beginning of the nineteenth century, the more intelligent part of Russian society followed the French Encyclopedists. Then fear of the ideas proclaimed at the French Revolution, the struggle with Napoleon and other causes evoked a reaction, which took the form of a strong mysticism. The Government persecuted philosophy as a very dangerous thing ; society was not interested in it. Not till the fourth decade of the present century did the interest in philosophy revive. Hegel then became the idol of a talented and influential group in Russian society. Two eminent men, Bielinsky and Herten, were at the head of the movement. Bielinsky, who may be described as a Russian Lessing, set forth his views in critical articles. Herten was a brilliant publicist. Thus Russia had not yet philosophers *pur sang*, but only philosophising critics and journalists. At the end of the seventh decade of the century, Russian society at last found good teachers. Auguste Comte, John Stuart Mill, Lewes and Mr. Herbert Spencer became the favourite authors in Russia. If Comte was not translated into Russian, the cause was not his want of popularity, but the formal prohibition of the censorship.² But the public became acquainted with Comte's system through the works of Mill and Lewes on Comte, and through many articles of positivistic tendency. Almost all Mill's works have been translated and greatly appreciated. Lewes's *History of Philosophy* has been translated several times. His *Problems of Life and Mind* also has appeared in Russian. Finally, almost all the works of Mr. Herbert Spencer have been translated, and, at the time of which I am speaking, Mr. Spencer became the most popular philosopher in Russia.

But this current did not obtain unquestionable and definitive supremacy. I cannot say that the Spencerian philosophy is not popular now, but neither Mr. Spencer nor the positive (I use the word in its widest sense) philosophy has such a prevailing influence as before. A great

¹ Strictly speaking, it is the second Russian philosophical Review. The first attempt to establish a journal of this kind was made by M. Kozloff, Professor in the University of Kiev ; but his Review had no contributors except the Editor. After a year's existence (1886) it was suspended in consequence of a serious illness of M. Kozloff.

² Thus, some years ago, I translated and wrote an introduction to the first two chapters of the *Cours de Philosophie Positive*, and tried to get the little book published. But the censorship put a veto on it. Its motives were interesting. I was told formally that my book could not be published because Comte entrusts the law of gravity with the destiny of mankind.

many other philosophical schools find adherents in Russian society, and altogether the mental tendencies have become entangled and confused.

So much for the public. As for the authors themselves, I can only mention three who profess the positive or scientific philosophy. They are: MM. Lesevich, Troitzky and de Roberty.¹

M. Lesevich published in 1877 a work which is a critical review of Comte's philosophy. In his introduction the author repeats the words of Schopenhauer: "It is easier to point out the mistakes and delusions of a great mind than to give a clear and full account of its qualities". These words give a correct idea of the attitude of M. Lesevich towards Comte. M. Lesevich says: "In undertaking the critical review of Positivism, I do not try to invent an original Russian philosophy, but strive only to profit by the results obtained by the West-European philosophy so far as it appears scientific". The author is an adherent of the new German Critical philosophy. Carl Göring, author of a *System der kritischen Philosophie*, seemed to be at that time his favourite philosopher. The second philosophical work of M. Lesevich was his *Lectures on Scientific Philosophy*. Here, as in his articles, which are now being printed under the title "What is Scientific Philosophy?" he sets forth the views of the new German Critical school, especially those of Göring, Laas, Avenarius and Riehl.

M. Troitzky, in his three philosophical works, *German Psychology of the Century*, *Science of Mind* and *Manual of Logic*, is an adherent of the English philosophy, especially of Prof. Bain.

M. de Roberty, in his two works, *L'ancienne et la nouvelle Philosophie* (which appeared in Russian and in French) and *L'Inconnaissable* (which did not appear in Russian on account of difficulties with the censorship), adheres to the school of Littré and Weyrouboff.

Passing now to the exposition of the articles in the first number of *Voprosy filosofii i psichologii*, I may mention that MM. Lesevich and Troitzky are amongst the contributors to the Review. The brief account

¹ I speak here only of philosophers *pur sang*, and therefore do not mention such writers as MM. Mihailovsky, Kariieff and others. M. Mihailovsky is a very popular and talented journalist. It is as an ardent student of sociology that he might claim a place among philosophers. The following is a summary of his sociological views. First, he defends the subjective method (the word 'subjective' being used nearly in the sense in which it is applied to Comte's later phase). Second, he will have nothing to do with the doctrine which considers society as an organism. Both these views of M. Mihailovsky led him to an energetic, but, to my mind, unsuccessful, attack on Mr. Spencer. His third view consists in the rejection of the predominance of the struggle for life as a sociological factor. It is to be noticed that M. Mihailovsky is not at all an adversary of Darwinism in biology; but in sociology he opposes to the theory of struggle for life a theory of struggle for individuality. Unfortunately, this doctrine of M. Mihailovsky has not received harmonious development and is not free from perplexity and vagueness. M. Kariieff, Professor of History in the University of St. Petersburg, has written a voluminous work, *The Ground-problems of the Philosophy of History*, of which the third volume has come out recently. He also is a partisan of the subjective method, thanks to which the philosophy of history appears in his work as a kind of scientific theodicy of progress.

of the contents of the articles will be preceded by a short *curriculum vitæ* of the authors.

(1) Prof. Nicholas Grote (Editor of the Review).—It is rather difficult to define the philosophical position of Prof. Grote. In his first work (not counting his pamphlets), *The Psychology of the Feelings*, Prof. Grote follows Mr. Spencer in regarding pain as an excessive or insufficient activity and pleasure as a moderate activity. After publishing his second work—*Contribution to the Reform of Logic*—he went on to expound his views in pamphlets, public lectures and newspaper articles, in which he treated of the most various subjects, as, for example, Pessimism, Progress, the Soul, Classification of the Sciences, &c. To give an idea of the evolution of Prof. Grote's philosophy, I may relate the following episode. In consequence of one of Prof. Grote's pamphlets, Nicanor, Archbishop of Odessa (author of a voluminous work on Positivism, or, better, against Positivism), congratulated him on having become a spiritualistic philosopher. To this Prof. Grote answered by an article on his own philosophy, which he characterised by this metaphor: As the traveller round the world has to become, at a certain moment, the antipodes of himself, so the philosopher, inquiring into all questions, has to become, at a certain moment, his own antagonist.

In the new Review, Prof. Grote has an article "On the Aims of this Review". He put the question: What will the Russian nation contribute to philosophy? and answers it as follows: The ideal of philosophy consists in the reconciliation of science, art and religion. To that every philosophy tends. But the philosophy of Greece conciliated harmoniously the ideals of truth, goodness and beauty from the point of view of beauty. Contemporary West-European philosophy tends to the same harmony from the point of view of truth. It is left for the Russian nation to put on the first plane the moral interests of life.

(2) M. Vladimir Solovieff.—M. Solovieff is much more of a theosophist than of a philosopher. He began with *The Crisis of European Philosophy against Positivism* (1874). "The conviction," he says, "that philosophy as abstract, purely theoretical knowledge, has finished its evolution and fallen irrevocably into the world of the past, forms the basis of this book." It would be easy to give a positivistic meaning to this sentence; but that would be a grave misunderstanding. M. Solovieff's meaning is diametrically opposed to Positivism. He aspires to a "complete and universal solution" of the problems that have occupied philosophy. In his second philosophical work—*Critique of Abstract Principles*—M. Solovieff discovers that "the real organisation of true knowledge as a free theosophy is determined by the resolution of another great problem—the organisation of our own activity or the realisation of the divine principle in the being of nature". After that, M. Solovieff cast off even the vesture of a philosopher and came out in his true colours as a theologian; see his work *La Russie et l'Eglise Universelle*.

M. Solovieff has an article in the new Review on "Beauty in Nature". Here he finds that "the cosmical mind in manifest opposition to the primordial chaos and in secret agreement with the world's soul or nature—a soul which more and more submits to the mental suggestion of the architectonic principle—creates in it and through it the complex and beautiful body of our universe. This creation is a process which has two ends profoundly connected with each other—a specific end and a general end. The general end consists in the incorporation of the effective idea, that is, light and life, in different forms of nature's beauty; the specific end is the creation of man."

(8) Prof. A. A. Kozloff.—The philosophical thought of Prof. Kozloff has

gone through a succession of phases which is the inverse of the historical movement of philosophy. He began as a translator and admirer of Hartmann; then, after attaching himself to Schopenhauer and Kant, went back to Leibniz. His first original work was his *Philosophical Studies* (pt. i., 1876, pt. ii., 1880). The purpose of his studies was to prove that philosophy is a separate and independent science, to give a definition of the conception of philosophy (according to Prof. Kozloff, the science of the world as a whole), and to indicate its method. (The second study deals with the method of Plato's philosophy.) Prof. Kozloff's second work was *Philosophy as Science* (1877)—a polemical work written in defence of the first part of his *Studies*. In 1878, he published *The Philosophy of Reality*—an exposition and criticism of Dühring. Then came the following works: *Genesis of Kant's Theory of Space and Time*, *The Quarterly Philosophical Review* (a Review which existed only one year), *Outlines of History of Philosophy*, and two Nos. of (*My*) *Own Word*—a magazine which appears in place of the *Quarterly Philosophical Review*, at uncertain intervals. In these works the return to Leibniz may be observed. In the *Genesis, &c.*, the author proves, amongst other things, that Hume's influence upon Kant was principally negative, and that most of Kant's definitions of time and space may be reduced to the definitions of Leibniz and Newton. In his *Outlines* Prof. Kozloff reduces all systems to (1) philosophies of absolute being and (2) philosophies of absolute change. To the first category he refers Spiritualism and Materialism; to the second, Positivism, Phenomenalism, Evolutionism and Sensualism. Prof. Kozloff predicts the inevitable ruin of the second category, after which a short struggle between materialism and spiritualism will lead to the definite supremacy of the philosophy which seeks an "absolute principle in the region of mind". The greater part of his *Own Word* is filled with "Dialogues with the Petersburg Socrates," in which he attacks the materialists, but especially falls upon Hume. The greatest part of the second No. is taken up with criticism of Hume's and Kant's views on existence.

To the new Review Prof. Kozloff contributes "Meditations called forth by an unexpected voice from the region of Natural Science". The call comes from Prof. Bunge of Basel, who in his work, *Lehrbuch der physiologischen und pathologischen Chemie* (Leipzig, 1887), has touched upon the question of vitalism and mechanism, and has given utterance to the opinion that mechanism cannot explain all the phenomena of life. Prof. Kozloff greets with pleasure this confession of a naturalist, and points to teleology as the only issue for philosophy and science.

(4) Prince Troubetzkoi.—A beginner. In one of the notes to his article in the Review he announces the recent appearance of his book *Metaphysics in Ancient Greece*. His article is "On the Nature of Human Consciousness". "The supreme principle of modern philosophy," he says, "is the idea of personality. Its criterion is personal conviction; its point of departure, personal consciousness in the three-fold form of—personal revelation (reform of the German mystics), personal understanding (Descartes' reform), and personal experience (Bacon's reform)." The author brings up the question, whether consciousness is always personal, and answers that the human consciousness is not only a personal but also a collective function of mankind.

(5) M. Shishkin contributes the first part of an article on "Psychophysical Phenomena from the point of view of Mechanical Theory".

(6) M. Nicholas Lange.—Author of *History of the Moral Ideas of the Nineteenth Century* (only the first part yet published). In this work the

author appeared as an adherent of Kant's ethics, to the formalism of which he, however, objects.

We have in the Review his psychological observations on the effects of hashish, which he tried upon himself in Wundt's laboratory.

(7) M. Lesevich (of whom I have already spoken).—He has in the Review an article on "Religious Liberty according to the edicts of King Asoka the Great". It is to be noted that M. Lesevich is now zealously studying Buddhism.

Of the authors announced as contributors to the Review, but who have nothing in the first number, I will mention only Count Tolstoi and M. Strahoff.

There is not an author in Russia about whom so much has been written lately as Count Tolstoi. It would be an error, however, to speak of a philosophy of Count Tolstoi, and of the influence of this philosophy upon Russian society. Neither Count Tolstoi nor his followers have any interest whatever in philosophy; they are even indifferent to ethics as a science. All their attention is drawn by the practical question, how life is to be ordered so as to respond to their moral feeling (and they mean their own lives, for Count Tolstoi rejects political activity). If Count Tolstoi sometimes tries to maintain his teaching by theoretical reasons, he does it very faintly and superficially, but his disciples are not at all troubled, for their hearts burn with true sectarian faith. Even from the practical point of view Count Tolstoi's teaching scarcely presents anything new, and all his success is explained by the fact that he has lent his great and famous name to a movement that had begun long ago.

As to M. Strahoff, that zealous Slavophil, author of *The Strife with the West* (of Europe) in our (Russian) *Literature* and some other works—a philosopher for whom the *Cogito ergo sum* of Descartes is still the point of departure—I mention him only because I want to say a few words about Philoslavie philosophy.

Strictly speaking, there is no such thing as Philoslavie philosophy, because the most talented and influential Slavophiles have been much more inclined to theology than to philosophy. Indeed, there could not be a Philoslavie philosophy, because of the want of anyone amongst all the Slavophiles capable of severely logical reflection. Amongst them have been some incontestably talented men, but they have all been of an inconsequent, nebulous, exceedingly irrational mind: men who mostly lived on sentiments—romantic worship of old Russia, and, what is more, of an old Russia which was created by their own imaginations.

P. K. MOKIEVSKY.

THE ARISTOTELIAN SOCIETY FOR THE SYSTEMATIC STUDY OF PHILOSOPHY (22 Albemarle Street, W.).—The Eleventh Session commenced Monday, Nov. 4, with an address from the President on the subject "What is Logic?" Monday, Nov. 18, a paper by Mr. S. Alexander on "Scepticism"; Monday, Dec. 2, a paper by Mr. Bernard Bosanquet on "The Æsthetic Theory of Ugliness". Both papers were followed by a discussion.

The Executive Committee has just issued a circular in which it commends the Society "to the support of all those who take an interest in the subject of Philosophy, and are desirous of seeing the study of it strike a deeper root and obtain a wider influence in this country". The Society "provides for students of all shades of opinion a means of

meeting on equal terms and discussing philosophy in common under both its aspects, theoretical and historical". Residents in town or country, wishing to be nominated for membership, are invited to communicate with the Hon. Secretary, Mr. H. Wildon Carr.

Part xiv. of *Proceedings of the Society for Psychical Research*, issued last June, had, besides a short address from the President, Prof. H. Sidgwick, for its chief contents, a paper "On Apparitions occurring soon after Death," begun by the late E. Gurney and completed by F. W. H. Myers; "Recent Experiments on Crystal Vision" (anonymous); and "Automatic Writing: iv. The Daemon of Socrates," by F. W. H. Myers. No. 4 (vol. i.) of *Proc. of the American Society for Psychical Research*, issued last March (Boston, U.S., Damrell and Upham), had, among many other Reports or Notes of remarkable interest, a long "Report of the Committee on Phantasms and Presentiments" (with supplementary Note) by Prof. J. Royce, which should not be overlooked by any of those who remember his very striking paper on "Hallucination of Memory and 'Telepathy'" in *MIND* xiii. 244.

The organisation of psychological research and of philosophical instruction continues to make good progress in America. In point of instruction, a very comprehensive scheme is now being worked at the New York Columbia College by Prof. N. M. Butler (assisted by Mr. J. Hyslop). The new Clark University at Worcester (Mass.), under the headship of Dr. Stanley Hall, promises a still greater activity of psychological research than marked his Baltimore professorate. Also, at the University of Pennsylvania, Prof. J. McK. Cattell has, in connexion with the flourishing School of Biology, secured a position and establishment for conducting effective research.

Paris has now, at the Sorbonne, its Laboratory of Physiological Psychology, under the direction of Prof. H. Beaunis. At Florence, there has been added to the Museum of Anthropology and Ethnography, by royal decree, a Psychological Museum under Prof. Mantegazza, for bringing together all kinds of objects or documents that may throw light on "human passions," or (as it is also described) "psychology of men," in distinction from "psychology of man".

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—THE CEREBRAL CORTEX AND ITS WORK.

By HENRY MAUDSLEY.

I.

THE comparative anatomy of the nervous system in the lower animals proves that creatures having no cerebral hemispheres, or having the rudiments only of them, are capable of much keen and varied bodily activity in response to the impressions made upon their senses. They possess not, it is true, the various nice and intricate movements of fingers and hands, the exquisitely fine and complex movements of speech, the delicate motor waves of human expression, the many scarce-noticed muscular tensions that accompany the different thoughts and feelings which are man's rich possession; but in respect of the gross movements of locomotion, of defence, of attack, of escape, of the seizing of food, of propagation of the kind, they are abundantly endowed. In face of this plain and weighty fact, it is natural to ask how far the intervention of the cerebral hemispheres is necessary to the performance of the same classes of movements in man. May not his spinal and sensory with their associated proper motor centres be capable by themselves of actuating similar movements in him?

In seeking the answer to this question, it is plainly of paramount importance to take account of the great difference in the position and relations of the spinal and sensory centres in those animals that have not and those animals that have cerebral hemispheres. In the former they are sole and self-sufficing, while in the latter they are intimately bound up with structures of another and higher order. In the one case we have to do with a formed nervous structure, definitely set and wholly appropriated to certain fixed functions, unconnected with any higher structure, incapable of further evolution, and pretty nearly incapable of modification ; in the other case, with a *forming* rather than a *formed* nervous structure, since new and intimately connected parts are superposed which are plastic to new uses and thereby undergo processes of internal organisation. The result is that the one can learn and improve—can be *in-formed* to new and higher uses—and that the other cannot. The cerebral hemispheres are virtually growing structures ; they have grown in the long past from mere rudiments, such as they are in fishes, to their most complex development in man, in whom they perhaps still grow slowly through the ages. In them the plastic energy of organic evolution is doing its latest and highest work ; there is nothing higher to temper the mighty conceit which it has of itself in doing such work.

By the superposition of cerebral hemispheres and their intimate structural connexions with the lower nerve-centres, these are deprived of the simple autonomy which they have in animals that are without cerebral hemispheres. They are no longer sole and self-sufficing ; the impressions they receive, instead of provoking instant motor reactions, can now pass beyond them and be otherwise dealt with. If I go to the edge of a pond in which there are carp that are not accustomed to be fed and throw in a piece of bread, they dart away instantly, so many flashing lines of life, as if from a great danger. The flight is an instant instinctive act with which the rudimentary cerebral hemispheres may have nothing to do, and at any rate is just what creatures without cerebral hemispheres would do : it is an instant fit muscular response of escape made to an alarming impression of sense. If I go to the edge of the same pond after the same fish have been accustomed to be fed and throw in a piece of bread, they rush forward the moment they see me and dart at the bread as rapidly as they formerly darted from it. A visual impression seemingly exactly similar is now followed by movement in an exactly opposite direction,

the fish having learned by experience that no harm but good followed it. The impulse of the impression is manifestly not carried along the same nervous track throughout in both instances; for it cannot be imagined to have such intelligence and freedom in itself as to be able, if it went along the same track, to give a different motor message: it is molecular motion simply, and issues in a different motor outcome only because of its transmission by different physical tracks. An alternative course is the basis of the seeming spontaneity. The presumption is, that in the one instance it goes directly across from the sensory to the proper motor machinery, and that in the other the direct transit does not take place, but that it goes across along a track which has been opened up by experience in new ground—that is to say, in the available, unappropriated nerve-paths of the rudimentary cerebral hemispheres. Where else could the current of activity go when its ordinary path was blocked and no path on the same level was open to it? ¹

What I desire now to bring into particular notice is that when the fish dart forwards the same actual motor machinery is put to work as when they dart away; they have not learnt a new series of movements, but have learnt to break an old circuit and to join the visual impression to the motor machinery by a new circuit reversing the movements. The current along the new circuit is another message, and it is this circuit or new message which we suppose the cerebral hemispheres to minister to. For what is the mental significance which the new process undoubtedly has? The fish has enlarged its experience and profited by it, as we may say in the simplest terms descriptive of the event—has ex-

¹ *Blocked* only because it is probably easier in that case for the current to pass it by and go along the other track. It is pretty and instructive to watch the gradual process of learning by which the fish come at last to approach eagerly that which they shunned wildly at first. With them, as with higher creatures, it is not mature and cautious age, but rash and enterprising youth, which initiates variations; for it is the small creatures that first overcome their fears and venture to try the unknown, and it is after they have come to no harm by their tentative ventures, but on the contrary have made a profitable experience or discovery, that the older ones, leaving their conservative ruts, follow cautiously in their train. It is the visual impression of possible food which tempts the young, the hungry impulse of inexperience which overcomes their first fears. If we make the fanciful conception of all the fishes as constituting one organism, we perceive that it is the youngest, the least organised and most plastic substance which lends itself to variations, timely or untimely.

tended and discriminated its feeling of fact and adapted its action accordingly ; it feels not now, or, if feeling, arrests, its former urgent impulse and reflects the current of the impression on to another track, which has been so *in-formed* to receive and transmit it ; in others words, it performs an act of reflection and comes to another conclusion—namely, to reverse the action of its motor machinery ; not otherwise than as an engine-driver who was going at full speed in one direction might, on perceiving a special signal, reverse his engine and go full speed in the opposite direction. The immediate nervous mechanism of the fit action is not then in the hemispheres ; it remains where and what it was ; all that the hemisphere presumably does is to link the visual impressions to it by new nervous arrangements that represent or embody a new adaptation—to formulate structurally an acquired experience or knowledge, and thus to organise or establish the capacity of using that knowledge to direct the action of the fish in time to come. The process is a veritable process of informing, literally an information, the informed structure embodying statically in its form or character and effecting dynamically the fit purpose or aim. To realise in imagination what takes place is to attend at the lowest foundation or the beginnings of a mental organisation. Unfortunately for our peace of mind we need two languages to describe the fact according as it is imagined from within or seen from without : in the one we must say that the new act is dictated by knowledge or reason ; in the other, that the impulse passes along definitely organised nervous tracts which, representing in the particular forms or patterns of their combinations or arrangements new fit motor adjustments to particular impressions from the outer world, thus embody implicitly in structure what they display explicitly in function.

If the carp's actual motor machinery in darting to and from the visual object be the same, what is the exact proper function of the excitomotor track of the cerebral cortex which presumably comes into play in the one case and not in the other ? Judging from physiological experiments made on the brains of higher animals, we may fairly conclude that if a certain limited area in the forepart of the cortex of the rudimentary hemisphere were suitably stimulated by an electric current, there would be a particular motor effect, as there would most likely be a loss of perception of the object, a mental blindness to it, if a suitable connected area in the hindpart of the cortex were removed or destroyed ; the wholeness and soundness of the

track and its terminals being the necessary conditions of the proper perception. But what would the probable motor effect be in the case of the supposed stimulation? The movements of bodily progression simply, without regard to whether to or from the object. That almost certainly would be the effect of any stimulus which the experimenter applied, coarse and diffused as it could not fail to be, however fine and exact he might endeavour to make it. What would be wanting to the movement would be just its important mental element—namely, a new informed perception of the visual object and a consequent guidance of the mere machine-like movements to a new end in relation to it. That work the new nerve-tracts of the cortex presumably do, their unseen function taking its visible mechanical effect through the connected coarser machinery. If this be a right view of the matter, it is not impossible to conceive that the application of a fine enough stimulus, with exact nicety of strength and limitation of impact to the particular nerve-track concerned, might arouse the mental conception, without necessarily exciting the subordinate motor machinery.

In the mental elements which have thus been added to the mere machine-like movements of the carp, in the new informed perception, that is to say, are there any motor additions? It does not appear how a new track could be formed otherwise. If the perception means a cerebral reflex, as it presumably does, movements of reaction must have been requisite to constitute it: the impression and the fit reaction must have gone together in the first instance to complete the physiological act, and must go together, actual or understood, afterwards. What are these movements? When the carp makes itself acquainted with the bread so as to know it to be good and to seize and swallow it, instead of fleeing from it, there cannot be the least doubt that it performs a number of fine movements of eye and mouth and nose, which are associated with the visual impression, which in their innermost and uppermost cortical registrations become constituent elements of the perception, and which, therefore, when aroused in the innermost afterwards, give to the object its acquired interpretation or meaning—make it practically a new object. It is, in fact, by virtue of these movements that the carp has modified its relations to the object: that this is not the same object to its eye, no longer a vague symbol of danger, but a definite apprehension: an image held, as it were, in most exact and fit muscular grasps, an informed perception. Thus the perception is at bottom a definitely organised excitomotor or reflex act, the motor

element of which is in close relation with the subordinate machinery of general bodily movement and the receptive or so-called perceptive side of it in close relation with the subordinate sensory centres. It is not then in any case the gross movements of approach that are directly represented in, and actuated by, the cortex ; if any movements be so actuated, they might be expected rather to be the associated fine movements which have contributed to the intelligent apprehension of the object and are thenceforth constituent elements of the perception.

II.

So much for the physiological aspect of the matter. Looking at it now from the mental side—What is the added mental element when the carp darts forwards to seize the bread? It is, of course, not possible to dive into a carp's mind and to discover what is passing there, but we have clearly the right to say that the act is purposive ; and purposive in the sense not of inborn, unconscious design, but of an acquired purpose. That is to say, in other words, that it has the essential constituent elements of a voluntary act—namely, the guidance of appetite or desire by knowledge or reason. The creature knows not that it wills, but it certainly has willed ; knows not that it reasons, but certainly has reasoned. Its first and instinctive impulse has been superseded by a voluntary act—blind desire to escape, by informed desire to profit. Plainly we have to do with an undoubted mental act, call it perceptive, rational, voluntary, or what we will ; and it is from the multiplication, combination and complication of such simple factors that the mental structure, however complex in the end, is built up. To thoroughly comprehend and explain its nature would be to possess a key to the interpretation of the most complex mental acts.

But there is undoubtedly a vast deal to do, or to undo, before we can see and apprehend the facts just as they are. Endeavour as earnestly as we may, we cannot purge our vision and free our thoughts from prejudice. We are obliged to make use of the language of psychology—most of the terms of which are without clear and exact meaning, and every one of which probably contains and conveys some unwarrantable implication, since it is inspired or infected with the traditional notion of mind as something that has being independent of organisation, whose functions therefore belong to quite a different order from all other natural functions, and require to be studied by a method other than the method of all positive science. The pity of it is that while they stand so

absolutely apart in nature and in the method of study demanded, they actuate every moment so many events of the ordinary world which can only be studied by the common method of positive science! Happy might it have been if, when the scientific study of mind began, a new nomenclature had been invented and afterwards progressively developed as it was needed, so that the study of facts might have gone on and the knowledge of them have been gained simply as it unfolded itself, without hindrance, prejudice or bias from the implications and vaguenesses of a language invented and used to describe the entities of a pure psychology; in which case the science of mind, as studied from without, and the science of mind, as studied from within, might have kept entirely separate and, mutually indifferent, gone placidly their independent ways.¹ No such clean sweep having been made, there is nothing for it but to endeavour to get as clear and distinct ideas of real facts and relations as possible, to describe them in the best terms available, and to leave the fittest terms to survive in the struggle for existence.

From this positive standpoint it will be instructive to consider a little more fully what is the fundamental idea or plan of the mental organisation in the brain. The essential question is not whether mind does this or that, nor whether this or that has mental quality, but what it is which direct and unbiased observation proves the nervous system to do of itself, with or without the accompaniment of consciousness, what such performances actually are and signify, and what is the proper language to use in order to describe them. It is certain that we find in different members of the animal kingdom, either in germ or in actual display, most of those functions, if not every function, which we know as mental in man; certain, again, that we have not the right to describe by different names in him and in them functions essentially the same; and most certain that if the nervous system can perform them of itself in them it can perform them also of itself in him.

When we examine in low organisms the first beginnings of the nervous structure, the development of which in man subserves mind, it is evident that its foundation is the simple mechanism of a reflex act. Two nerves connected by central nerve-cell or nerve-cells serve, the one to receive

¹All the more to be desiderated, perhaps, since the language of psychology is itself derived from sensible experience; such purely mental functions as reflection, recollection, attention, deliberation, imagination, &c., being denoted by words of entirely physical original.

the impression from without and to convey the motion produced thereby in it to the junction-cell, which is the centre, the other to convey the resulting current from the centre to the outside world through the muscle or muscles to which it is distributed. From these simple factors of ingoing or sensory and outgoing or motor currents are built up by multiplication and complication of nerve-tracks all the complex factors of the highest mental organisation. The simple reflex act may be performed without any consciousness, as we know by positive experience of ourselves, and conclude from our observation of the lowest creatures that possess the first rudiments of a nervous system. Consciousness is not necessary to a purposive reflex act; the proper nervous mechanism is of itself adequate to its accomplishment.

In pondering the nature and meaning of such reflex action, two features of it thus come to claim particular notice: the first, that the afferent or sensory nerve-end is adapted to receive a special kind of impression, making for itself among impressions a selection or classification of them, as we should say if it pleased us to imagine it conscious and to describe its action in the language of psychology; the second, that the ensuing movement has a fit relation to the impression, not being vague, general and uncertain, but definite, special and purposive—not less apt, perhaps even more apt, than if it were called voluntary. The end of the double process is a movement either of attraction or of repulsion: a movement suited either to seize, apprehend or embrace the stimulus which is useful or agreeable to the organism, or to repel or avoid the stimulus which is hurtful or painful to it. Herein we have the fundamental data of all mental function: first, attraction and repulsion, based in the organic life, which in higher developments become appetite and disgust, desire and dislike, love and hate; and secondly, the adaptive reaction, which, being the means through which appetite or desire obtains fulfilment, serves the so-called animal life, and constitutes in its highest developments the basis of the intellectual structure.

Such are the facts; in order to the apprehension of their full meaning they deserve a fuller consideration. It was taken notice of just now that the nerve-ending on the surface of the body responds only to the impression which it is fitted by its nature to receive, and is indifferent to the stimuli which affect other nerve-endings differently constituted: that it virtually analyses impressions and makes a classification of those that are of the same kind. The eye is insensible to sound-waves, the ear insensible to light-

waves, the nose insensible to the stimuli which occasion taste in the tongue, and the mother-sense of touch practically insensible to any of those stimuli which suit its special developments severally; and there are creatures low in the scale of animal existence which have none of the sensibilities of the special senses. Moreover, the nerve-ending may be insensible to its special stimulus because this is either too weak or too sharp to affect it; there are notably sound-waves which one ear, human or animal, can hear but another cannot hear, light-waves which one eye can see but another cannot see, either because the undulations are too slow or too quick to make the fit impressions. It is obvious, then, that the portion of nature to which any creature is sensible, with which alone it is in relation, is but an infinitesimal fraction of the whole; and obvious also that creatures below man in the animal scale, and especially the minute creatures whose instincts and activities stir our surprise and admiration, may well be sensible to degrees and even kinds of impressions of which he is insensible. To every creature the world is so much of the real so-called outer world as it is in relation with, and such in character as its means of relation determine; just that world and no more which it feels and, if so be, thinks.

But that is not the whole of the lesson which it is perhaps right to learn. A further conclusion, not less just if less obvious, is that the so-called outer world, or not-self, as felt or known by the individual or self, is not something distinct from and independent of him. He is a part of it, living in and by and for it, not apart from it; and he plays himself a pernicious trick when he thinks to separate himself from it, to place himself over against it in abrupt antagonism, and to observe it objectively. Every pulsation of life, whether physical or mental, is object *plus* subject, not one nor the other separately, but a resultant; or it is subject as mode of manifestation of the unity of organisation of nature. Imagine a simple reflex act to detach itself from its environment, to deem itself a subject, and to declare its activity to be objective and separate; the very outcome of self, or of nature working through self—that self being nature—to be a not-self. But is not that very much what we do when we make the distinction in the high mental planes of reflex action? It is error, if error it be, which has sprung from the prolific source of our greatest woes—that is to say, from the exaggerated importance and false position assigned to consciousness in mental function; from the consequent transformation of it into a transcendental something in-

habiting metaphysical regions; and from entire failure to observe the actual physical conditions under which it invariably and inevitably arises, waxes, wanes and lapses. An accompaniment of, not working agent in, mental function, arising from incomplete or interrupted union between the self and not-self, and maintained and conditioned by the reflective action of the nervous plexuses of the cerebral cortex, consciousness illusively interprets different brain-acts, or rather the different poles—sensory and motor—of the same brain-act, as self and not-self.

With the special sensory impressions which join to constitute the particular perception, there go along necessarily answering motor effects; discriminations of sight, of sound, of touch, implying the nicest corresponding motor adjustments. Perception is not half the process of a cerebral reflex, as the ordinary way of speaking and thinking of it might imply, but the full reflex. The perception of an object, such as a chair, seems a passive experience, but it is not really so, for it involves and includes fit motor reactions to the impressions: we never could have learnt to know the object except by many motor apprehensions in the past—motor apprehensions of it by the hands and of its image by the eyes. The formed percept, therefore, is compound, just as the apprehension was in formation; it contains the understood motor experiences—that is to say, the anterior cerebral kinesodic or out-tending as well as the posterior cerebral æsthesodic or in-tending, from which *in-tending* and *out-tending* together comes fit *ad-tending* or *attention*. Everywhere fit movement must answer to fit impression. The fullest and most perfect life signifies the greatest number of the fittest movements in answer to the greatest number of the fittest impressions. Many small creatures are admirable in the adaptations of their acts to their impressions, more perfect than man in that respect, but the range of their impressions is very limited and special compared with that wider range which his senses open to him. They are perfect machines for their comparatively low ends, their simple nervous system being wholly appropriated, and, as it were, stereotyped to certain set uses; whereas he is a progressive and perfecting machine, his complex nervous system being plastic to new uses. Latest birth of nature and microcosm of the animal world, he has taken almost entire possession of, and now alone continues in his line, the process of evolution which went on for countless ages in several lines of animals below him until checked by his dominant ascendancy. All the same, he is

infinitely little at his best ; he ever lives and moves and has his being in relation to a very small part of nature, and cannot feel, think, or act, has no life or being, apart from that circuit of nature of which he is part, and which, although he enlarges it as he progresses, remains infinitely small. He is on about the same level of ignorance when he knows the constitution of a chemical molecule and the constitution of a solar system, and, perhaps, discovers their constitutions to be essentially one.

III.

That the fit adjustment of movement to impression is the fundamental quality of perfect reflex action is plain and certain ; it is not so plain, although it may, I think, be shown to be no less certain, that such fit adjustment is also the fundamental quality of reason or intelligence. To perceive or be sensible of a coexistence or a series of impressions and to determine fit action consciously in relation to them, is intelligence or reason ; it is to act with purpose after reflection—that is to say, to distribute the combined æsthesodic impulses along nerve-tracks whose union in function shall effect the desired end. Reason is essentially reflex action : that is the fact which it is important to note and weigh. Differences, of course, there are between an act of reason and a simple reflex act ; for, first, reason embodies and expresses more complex adaptation than simple reflex action ; and, secondly, it is conscious while the latter may be unconscious.

Are these differences so great as they seem to be : (a) as regards consciousness and (b) as regards complexity ? But little reflection is required to show that consciousness does not make the mighty difference which is commonly supposed ; for, while it necessarily attends the formation of an act of reason, it is certainly not necessary to its accomplishment once this has been thoroughly formed. Nothing is more plain than that an act of reason which has been done a thousand times, and thus has become habitual, is performed unconsciously ; on the occasion of the fit impression we reach the conclusion instantly, without being aware of the steps of the process which we went through deliberately when we performed it for the first time ; a set nervous arrangement has been formed, and use has made that an easy instinct which was conscious labour at first. This degree of instinctive perfection has been reached by a great number of the habitual acts of reason which we perform daily ; in respect of them we are on a level with the minute creatures whose quick instincts

stir our surprise and admiration — formed or completed machines set to certain definite uses ; consciousness having lapsed with the completeness of the formation. The proper nervous mechanism, when it has been suitably organised by fit use, is adequate to the accomplishment, without consciousness, of acts of reason (or what would be called reason were they conscious) even when these are purposive acts of a complex character. Mind can do its work without knowing it : predesigning consciousness is not necessary to the accomplishment of design. Consciousness when it is present is the light which lightens the process, not the agent in its accomplishment. Furthermore, another weighty reflection which we ought to take serious account of is, that although consciousness necessarily attends the formation of an act of reason, it does not in that case precede or dictate it ; actually it only accompanies or immediately follows the perfecting act. It is a signal illusion to suppose, as the wont is, that consciousness can direct itself, or be directed, methodically to this or that chamber of the mind, seek for and find what is wanted, and thereupon summon it forth and use it. When mental process of that kind takes place in such functions as recollection, imagination and reflection, it is not consciousness which determines and effects it ; we are never conscious of the thing until the thing is ; consciousness does not go before the event, it only comes into being with its accomplishment. Reason is implicit in the process before it is explicit in the knowledge. We learn to perform reason, just as we learn to perform a complex act, by doing it, and, as with movement, perfect it by practice ; and always the reason is in process of function before consciousness is developed, as it is implicit after consciousness has lapsed.

So much for one great difference between reason and reflex action : the other is the much greater complexity of the intelligent event. In the fit responses to manifold impression and their various relations which take place in a rapid act of reason there is necessarily more involved and more to be unfolded than in a simple reflex act. At the outset it is obvious that there are no actual answering movements. The necessary in the first instance to the development of reason, functional movements are not necessary afterwards to its so to join ; they enter into it as motor *subauditions* (*subaudio*), *supra* speak ; their fit registrations or representations in the *name* cortical tracks of the brain suffice. Moreover, there consist actual impressions, for here also it appears, when we consider the matter, that we deal with representations of *acete* experiences, not with full and exact reproductions of

them. The impressions, simultaneous and sequent, and the answering motor effects are not in fact concrete experiences, but are representative of concrete experiences—are general or abstract, so to speak; they are signs used to represent or mean concrete realities. It is the reflexes of such signs that are performed in reasoning. Even when the reflex is excited by an impression which is actually made on sense, the impression is a very partial affair. When we think of or act in relation to some known object which is present to sense—an object, that is, of which we have gained an idea or apprehension by experience—we neither have nor require all the different sensory experiences which it is capable of producing in us, which we might, however, obtain from it if we tried, and which were required at first to gain an adequate perception or apprehension of it; one instructed sensation of it suffices as sign or symbol of the rest that are understood. For example, on seeing an orange and thinking about it we do not go through all the concrete experiences of sense which we can obtain from it, if necessary—do not touch, taste, smell it, as well as see it, in order to know that it is an orange, as we were obliged to do at first in order to apprehend it truly. If it were necessary to do that with every object on every occasion of perceiving it, life would be filled up with the practice of a few perceptions and of the first steps of reason; nor would the structure of the brain, extremely fine and intricate and complex as it is, be equal probably to the necessary demand on its physical resources to register separately the innumerable concrete experiences of the same object. We abstract from the concrete details of a class of particular experiences that which they have essentially in common, and use the visual or other sensory impression of the object as sign or representative thereof, knowing well what we shall find beneath it if we go to the test of actual experience. The sign acts like the name of the object when this is not present to sense, serving to excite the thought of it, and, therefore, of the possible sensory and motor experiences from it.

As it is with sensory impressions, so likewise is it with their associated movements. We do not on each occasion make the concrete details of movement which would be the fit and necessary responses to the concrete details of the impression; we abstract that which they have essentially in common, and use the motor registration as sign or representative of them in our thinking, knowing well what it means in value when put to the test of actual experience. For example, when we apprehend an orange by

grasping it in the hand, or by grasping its image, so to speak, by the proper movements of the mechanism of the eye, we have not intuitions of the associations and degrees of contractions of the different muscles which are required for the respective performances—the movements, now quick and easy, which we had to perform tentatively and associate gradually by practice in the first instance; they have been so combined or conglutinated in the general purposive act that they constitute a motor complex, and are silently understood; and therefore the conception of the aim or purpose suffices, as it were a sort of abstract representation or general sign, to set them going in proper concurrence and sequence. We respond by motor signs or symbols to sensory signs or symbols, and so obtain the vast extension of reasoning power which is our human characteristic and privilege. The act of reason is still at bottom, however, the fit reflex at a higher remove, the ideal performance of it; and the logical conclusion in any case, given the proper premises, is just as necessary, as mechanically inevitable, as the right reflex act to a particular impression. If anyone is asked to assent to the general proposition that all men are mortal, he does not need to think of any particular man, the word man sufficing as a representative sign of all particular men; nor does he need to think of a particular process of mortality, the word mortality sufficing as a sign of all such particular processes; but so soon as he apprehends the meaning of the proposition he is compelled, if he has a sound understanding, to assent to it; he can no more help such assent than he can help winking when his eyeball is touched. If he is in earnest to realise distinctly the meaning of the general proposition, to have a clear and definite idea of what the actual fact is which underlies the general statement, he must come down from signs and generals to particulars, and form an image of a concrete man and of a concrete process of mortality—must descend from the higher planes of reflex action to the basal experience of concrete reflex action. It is a misfortune for common thought, but the privilege of metaphysical thought, to have no basis in sensible experience, and to be untranslatable into such experience.

IV.

Without doubt, then, the plan of the entire nervous system is the nervous mechanism of a reflex act, and the development of such system, even in its highest parts, the complication of such mechanism. That complication takes

the form of the association of several ingoing currents from different sensory endings by means of central nerve-cells, and the thence distribution of them as outgoing currents along several tracks or lines of conduction; and it is obvious that in the junctions of central cells, and in the multiplication of their connecting fibres on the same level, there are the means of many fit distributions and of different combinations of distributions. There is the further complication of different levels by the superposition of areas of higher level of reflex action with which areas at a lower level are connected, and in the more abstract and complex superordinate function of which their functions are represented; so that from the higher areas pregnant impulses may pass to different subordinate centres and be suitably distributed. The higher in the animal scale an organism, the greater is the subordination of parts generally, and the more subordinated specially are the lower centres of reflex function to the higher centres: the spinal centres of the decapitated man can do little or nothing, but the spinal centres of the decapitated frog are nowise so impotent, for they have not lost their independence and merged their authority in the constitution of superior centres from which thenceforth their orders come. In effect this serial structure of the nervous system is a fair parallel on the physical side to the ascending process of mental development in which from particular ideas are formed general ideas, from these still more general ideas, and from these in turn more and more abstract ideas. Going back for a moment in thought to the former simple illustration of the carp and its successful education to new conduct by the transmission of the ingoing currents along other tracks and perhaps a higher level of reflection, and thus getting mental hold of what takes place in a low-organised and comparatively simple nervous system, we may with the more ease conceive the extension of the same principle of construction and function through the complex structure of the highest nervous system with its larger scale of subordination and co-ordination of parts.

In the end, then, it comes to this: that the difference between the simple nervous structure of the lowest creature which possesses one and the complex nervous system of man is the measure of the difference between the simple and general reflex acts of which it is capable and the multitude of complex and special relations with external nature of which he is capable. To the progressive increase and specialisation of such relations through the animal kingdom, the progressive development of the nervous system

has answered; its structure incorporates or capitalises the accumulated experience of the race in its progressive adjustments to its surroundings; and it accordingly displays explicitly in function, when it is active, that which is contained implicitly in it. What we have to realise, then, is: that in the details of special structure and form wherein the human organism differs from and surpasses the nearest related animal organism, are embodied those special human qualities which difference man from, and constitute his superiority to, his next-of-kin in the animal world; that his nervous system, like every other nervous system, is the necessary formal and structural outcome of its historical development by minute increments through the ages, the living material embodiment of its past and present relations with its medium; and that the organised patterns or forms, inherited and acquired, of its cerebral cortical tracts are the fit or in-formed substrata of mental functions which, representing an immense storehouse of energy adapted to its relations with the medium or environment, discharge or expend what was embodied in structure. The storehouse of what sort of energy in its highest layers of organisation? Obviously of so many purposes or ends which, mentally presented, are thoughts, and which, bodily effected, are adjustments or fit acts.

So much, then, concerning the fundamental plan of the grey structure of the brain: a continuation of the grey substance of the spinal cord with its anterior or motor and posterior or sensory columns, it continues in some sort its plan of structure. But the plan has been so much modified by the disposition and packing of parts necessitated by the form of the brain that it is not easily traced in the higher centres; for parts which in the spinal cord are comparatively simple and have definite and easily recognised relative positions, have undergone such dissections and unions, such displacements and twistings, in the complex structure of the convoluted brain that it is not possible yet to say which is which and what are their respective functions. All vertebrates notably exhibit a distinct tendency to body-segmentation—that is, to a repetition of similar structures from head to tail; indeed, the facts of comparative anatomy are believed to warrant the conclusion that the vertebrate ancestor was constructed of a series of similar segments, each of which had its afferent nerves, its central plexus, and its efferent nerves. In the lowest vertebrates the parts are probably of the same value, but in the highest vertebrates those placed at the anterior extremity of the body have

undergone specialisations into special senses, and much of the length of space which would have been necessary had they followed one another in line has been saved by the twisting over of them into the globular form of the brain.¹ The result has been such complicated mixing and displacement of parts as to render definite localisations of the functions of the cerebral cortex a most difficult business. Something has been done, however, by the three methods of inquiry which have been patiently pursued; namely, the comparison of the brains of animals endowed with different degrees of motor and sensory development, the experimental stimulation and destruction of definite portions of the cortex, and the clinical comparison of the observed symptoms of local cerebral disease with observations of the nature and extent of it after death. Mainly by help of the two last methods of inquiry it has now become a generally accepted doctrine that there is a motor and a sensory region of the cortex, that the motor zone of it occupies nearly the middle portion of the external surface of each hemisphere, and that this zone is not functionally homogeneous, but consists of parts which represent and subserve different bodily movements. The regions in front of and behind this motor zone, when stimulated experimentally or irritated by disease or injury, have no effects upon movement; but there is good reason to believe that in the posterior regions are contained the so-called centres of the special senses, although their respective localisation is still a matter of uncertainty and dispute. So much is broadly certain: that the sensory and motor regions of the spinal cord are represented by their continuations in the cerebral cortex; that these representative motor areas have definite connexions with the lower motor centres, provoking, when stimulated, definite movements in definite parts of the body; and that its sensory areas have similarly definite connexions with the lower sensory centres, causing, when destroyed, definite losses of perception.

v.

Accepting these anatomical data, the question is—What actual relation of function the definite motor areas of the

¹ "One may conjure up a ludicrous picture of what a man's head would be like were space no object, and all the secondary centres of the cortex arranged, as in the alligator, in rectilinear series." *The Plan of the Central Nervous System*, by Alexander Hill, M.D.; also Abstracts of Lectures on the Brain-Mechanism of Sight and Smell, in *British Medical Journal*, March, 1886.

cortex have to the classes of movements which take place in consequence of their stimulation? I have already argued that they are not the seats of concrete experiences but rather of abstracts or representatives of experiences, of experiences at higher removes; abstracts which, like essences, contain in concentrated form and small compass the essentials of concrete experience. They are the seat of general or abstract movements, so to speak, as their associated sensory areas are of abstract sensations, and they function through fit signs or representations of sensory and motor experiences; they contain the mental not the actual motor mechanism; we think by them, as we use symbols in algebra, without calling for their value in concrete coin of experience. Their reflexes are our ideas, and the plexuses of them the organic web of our thoughts.

In speaking thus of abstract movements and abstract sensations, it is not, of course, intended that there is any such separate reality or entity as an abstract sensation or an abstract movement. That which is abstract is not really sensation or movement, the actual sensation or movement being always concrete; the abstraction is a mental abstraction, it is the abstraction from the particular realities of something which is common to every particular perception and movement of a class and its registration, or, so to speak, its denotation in fit nerve-structure. That which is permanent and real is the pattern or form of the special nervous arrangement at a higher level which subserves the common or general experience. Sensation and movement have been pre-essential to its formation; it is now self-existent and self-sufficing, *sui generis*, the current of its reflex resembling in nature the sensori-motor and the primary reflex currents, but being special. There is no reason to believe that any sensory nerve-fibres go directly to the cerebral cortex, or that any motor fibres proceed directly from it to their destination, without intermediate connexions with subordinate planes or areas of grey matter; the cortical representation is not direct but indirect representation; when, therefore, outgoing impulses pass from the motor areas of the cortex to the muscles and issue in movements, they are not directly motor but act through intermediate agency. The centres are not motor centres, but centres of motor abstracts. When they are active without translation of their activity into movement through the medium of the direct motor agents, what are such abstract activities but functions which we know as mental?

An idea is at bottom, then, a cortical reflex, and the word

or name is something by which we arbitrarily denote or mark it. But what is the word or name essentially? Neither more nor less than special, fine and complex movement arbitrarily selected or accidentally hit upon in the first instance, of which, by reason of its relation to inspiration and expiration, audibleness or sound is an incident. Any special movement which was uniformly used and could be recognised would serve the purpose were no sound to accompany it. The name of a perception or thought is something different from the perception or the thought itself, which may notably exist before it has got a name, and after it has lost it, and which has as many different names in as many different languages. The name is, in truth, a different perception and different movement, a different sensory and different motor complex; a separate reflex which, having been arbitrarily selected and uniformly used as a mark of the thought, is inseparably connected with it and acts as sign or signal to excite it, and in turn to be excited by it. It is not that we define an idea by naming it, as seems often to be thought; too frequently we create a prolific source of error and fallacy by naming it and using its name in thought and reasoning before it is clearly and distinctly defined: ¹ we define it radically by realising the special impressions and the special answering movements which have gone to its formation—by perfecting its proper reflex acts of apprehension. Having thus differenced it from other percepts, we give it an arbitrary name, mark it, that is, by a distinctive sign, which may stand for it ever afterwards and be used instead of it. But the structural constitution of a name, uttered or written, is strictly comparable to that of any other highly-specialised movement; it is not something of a different kind, but of the same kind—a special and complex instance of reflex action. Our reasonings by means of words are cerebral reflexes, reflexes at high removes which have their substantial meanings in the reflexes which they denote and excite.

Not that we utter the words or need to utter them actually

¹ Notably by giving the same name to things which, not being adequately defined, are not really the same but different, and so reasoning of them as if they were the same; again, by giving different names to things which, being defined by superficial features only, and not truly apprehended, are not essentially different, and so reasoning of them as if they were different; and again, by giving names to abstractions and then making things of names. To have clear and distinct ideas and exact denotations of them is the essential principle of sound reasoning; and in order that ideas may be clear and distinct, is it not necessary that they be based in sensible experience?

when we thus reason. The conception of a word is something different from the motor expression of it; if it were not, its conception would be its motor expression. Moreover, what we observe in examples of loss and disorder of speech proves that the articulating movements of words are not damaged or destroyed necessarily by injury or disease which damages or destroys the functions of the word-centres in the cerebral cortex. A person may lose the power to conceive the word, become utterly speechless in that respect of it, while retaining the power to utter its movements should they be otherwise excited: the psychomotor incompetence is not necessarily motor incompetence. The nervous mechanisms of the two functions must be different, for it is always a sound physiological inference that a difference of function means difference of organ or structure. When it is said, then, that we think by means of words, what is meant is that we think by means of their intuitions without making the requisite movements to utter them, not uttering them at all perhaps, or only making a kind of internal still utterance of them; and that still process presumably is the conceptional activity of the highest reflexes of the cortex without the articulating activity of the subordinate machinery of utterance. In which relation it is interesting to take notice how necessary to a person of uncultivated or of somewhat dull intelligence it oftentimes is to actually utter the word to himself aloud or in a whisper in order to get his conception; he cannot think by means of its cerebral notation without bringing to his aid the concrete interpretation, cannot perform abstract thought, cannot realise what the cheque is until he sees or feels the money which it represents. Everybody may discover for himself how helpful to fix attention, when it is prone to wander, the still utterance of the word sometimes is: incidental evidence how necessary for thought it is, first or last, to anchor in the outer world.

Now, what I desire to indicate in this connexion is, that as it is with words, so it is probably with all other highly specialised movements—with all the minute muscular tensions and fine movements of eye, mouth, nose, face and body generally, that go alike to the outward expression and internal constitution of moods and thoughts. They have the same constitution and the same signification as words; but we lose sight of their nature and essential operation in the mental or supreme cortical region because they have no names, no means of designation, and because, not considering sufficiently what is the real nature and significance of words or names, we attribute a special dignity and function

to their movements. Nevertheless, the mute language of expression is sometimes more eloquent than the spoken word; a particular muscular tension of features, a more distinct and efficient sign of a particular mood or thought than the vocal expression of it would be. Like words, these and all other specialised movements have probably their cortical representations or notations; they are implicitly essential elements of thought, and we habitually think by them without explicitly making them. Moreover, with them as with words, it does not fail sometimes to happen that we can perform them when we cannot think them—when the cortical substrata of the conceptions or intuitions of them are presumably not in function. For, in such case of impotence of intuition, what may be supposed to befall is the damage or destruction of the supreme cortical reflex which serves as the symbol or notation of the special act and thus marks its end or aim. There is not then the capability of thinking the act; the intuition of its purpose is no longer possible. In order to do a thing voluntarily, it is indispensable to know beforehand what it is we are going to do and how to do it; in other words, a conception of the end and means is prerequisite to its exact accomplishment. Once this conception of the design or purpose has been obtained by perfecting practice of the means, we can of course entertain the conception without going on to accomplish it actually; if we could not, the conception would always be the execution also. It seems, in fact, a legitimate psychological inference that there is a supreme cortical region of the brain, superordinate to direct motor areas, which is the seat of the representations or notations of specialised movements, and which ministers to the manifold conceptions and wills of a sound and well constituted mind.¹

If the foregoing interpretation of things be correct, it is evidently unreasonable to suppose that any physical stimulus

¹ This was what I endeavoured more than twenty years ago to set forth at length in a special chapter, entitled "Motor Nervous Centres; Actuation or Efference," in the first edition of my *Physiology and Pathology of Mind* (1867). At that time it was the accepted doctrine that the cerebral cortex was insensible to stimulation, and had nothing to do with sensation and movement; and the only notice which, so far as I know, the chapter received was contemptuous dismissal by a reviewer as inconsistent with that well-established physiological truth. Since then it has been shown by more exact experiments that the cerebral cortex has a good deal to do with movements, and the tendency now perhaps is to make too definite localisations of so-called "motor centres," and to attribute to them too direct a motor agency. Anyhow, there is a mental side to their functions which requires consideration.

which the physiological experimenter can use will be sufficiently fine in its nature and exact in its application to be limited to the excitation only of the intuition of the specialised movement. The notion of so exact a success is almost as much out of keeping as the notion of measuring a nerve-cell with a common pair of compasses. The most nicely-applied and carefully-guarded electric stimulus in such case must inevitably work beyond its desired limits and affect neighbouring structures; and it is natural then to suppose that the structure most sure to be affected by the diffused stimulus will be the structure most intimately connected with it physiologically—that is to say, the subordinate, if not sub-cortical, actual motor area. That may well be a sufficient reason why the physiological experimenter cannot stimulate a thought or volition only, and why the attempt to do so must almost certainly be the excitation of a crude movement. Moreover, if he did succeed in exciting a thought or volition only in another brain, how could he ever know it? As the movement is the only way by which the thought or volition can discover itself to him, it is plain that without such discovery of itself it would be all one to him as if it were not. All the experiments in the world on animals must have failed for ever to make known the speech-centre in the human convolution, since its functions are special to man; that discovery was made, as other localisations can only be made in him, by comparing the functional disorders observed during life with the exact nature and place of the damage discovered after death; and it may well be that those portions of the first, second and third frontal convolutions in front of the recognised motor zone, which yield no motor effects when stimulated in animals, may yet have to do with the exceeding fine and almost imperceptible muscular tensions or movements that go along with their highest functions of attention and expression, and with such associated mental operations as they are capable of.¹ What

¹In man they may, of course, well have more special and complex functions than the lower animals are capable of, just as the foot of the third frontal convolution in him subserves movements of which they are incapable—namely, articulate speech. M. Charcot attaches the highest probability to the inference that the centre which presides over writing is situate at the foot of the second frontal convolution. "As for the region of the cortex," he says, "lesion of which produces deafness, that, certainly, as Nothnagel held as early as 1879, occupies the first frontal convolution." If that be so, is it not probable that it is the efferent or motor terminal of the cortical reflex, rather than the afferent or sensory terminal, which is the part damaged and causes the deafness? To sub-

we do in the way of communication with one another by means of speech and writing mainly, they do by means of a subtilty and variety of muscular expression which we cannot apprehend, but which makes some of them, notably the dog, so keen to perceive the mute muscular expressions of our moods. As sight and hearing are specialisations of the primal sense of touch, so writing, speaking and all the silent language of expression are specialisations of the general function of movement; and as writing and speaking have their special cortical seats, so, without doubt, have the fine mute movements of thought and expression their proper cortical representations: all three classes of movements situate probably in the near prefrontal neighbourhood of each other.

From all that has been said, then, it would seem very probable, if not certain, that no part of the so-called motor region of the cortex really is directly motor, but that its whole represents the specialised movements at higher removes, and that such abstracts of movements or motor abstracts are the out-tending or efferent aspects of the cortical reflexes which all our thoughts are. In mental apprehension is contained the understood fit responsive movement to fit impression which is expressed actually in bodily apprehension. That there are any motor centres and thought-centres side by side on the same level in the cortex—motor areas, that is to say, which do not take effect in movement indirectly through lower motor areas—is improbable, albeit not entirely beyond question in the present state of knowledge. To suppose such a direct motor centre on the same level with the thought-centres, would be to suppose no higher level for it—that it had not, nor needed, the cerebral representations at a higher remove which other motor centres need and have; and in that case it might be a question whether it could be made use of in thought, since its function would not be function in the mental plane only but presumably actual movement.

VI.

It would be interesting to pursue this line of speculative inquiry through the fields of mental pathology, since the facts to be observed there could not fail to suggest instructive reflections, but I limit myself now to the briefest

stitute for the conception of definite centres the conception of cortical reflexes—that is what it seems probable we have to do, in order rightly to interpret the results of experiments.

indication of their pregnant significance. The firm grasp of the nature of perception as a reflex of the proper track in the cortex will help somewhat to the understanding of the mechanism of hallucination. Take, for example, hallucinations of hearing, which are so common, persistent and teasing or tormenting features of certain forms of mental disorder. In the hallucination, as in the perception, there is an understood motor factor: as we cannot discriminate a sound until we have attuned the auditory muscles to its exact note, so we cannot have a hallucination without the co-operation of its fit motor *subaudition*. It is well known how attention to a faint sound intensifies hearing, and how attentive listening to a fancied sound will, if intense enough, become actual hearing. Listening attention is, in fact, a making ready to hear, a waiting readiness; it is the putting into a certain degree of action of the same nervous track which, when put into a greater degree of action, is hearing. With sense, as with thought, the secret of persuasion is to say what a person is hoping and waiting to hear. Let the internal tension reach a certain height of functional activity, whether from the impact of the fit external impression, or from some efficient internal cause without any external impression, and the proper sound is inevitable. We may discover it in the latter case to be hallucination by other evidence, but in itself it is distinct, positive, certain. So likewise is it with vision: we cannot recognise an object by sight without making the motor apprehensions proper to grasp its image; until we have succeeded in doing that, the unknown object may be a bush, a rock, a sheep or a shadow, we cannot tell which; and we may even see an object when it is not there at all if we have somewhat made the fit motor apprehensions. It matters not how the tract of the reflex be put into operation, whether at its æsthesodic or at its kinesodic terminal, if only it be put into adequate operation.

Reflect upon the not uncommon case of a mentally afflicted person who is tormented by the frequent or almost constant obtrusion of an offensive thought, blasphemous or obscene: it comes into his mind against his will, he knows not how or why, takes almost exclusive possession of his consciousness, cannot be banished from it by his most earnest endeavours, drives him into agonies of despair. Have we not here the separate and persistent activity of a special brain-track comparable to the sort of abnormal nervous activity which is the cause of a recurring muscular spasm—a disordered cortical reflex of like nature to a spasmodic reflex movement? Thus far there is no hallucination; and

although the sufferer may, if he be superstitious-minded, come to the conviction that the wicked thought is inspired by Satan, who has got possession of him, he does not actually hear it suggested to him. Even if he think it the work of some earthly enemy who is persecuting him malignantly in a mysterious way, he is aware that he hears no actual voice; that it is an 'internal voice,' not heard from without but within his head, perfectly distinct although inaudible to his ears.¹ In this case we may suppose the morbid thought-reflex to have excited to associated activity the cortical reflex of the name, and the corresponding morbid activity of this last thus to become the occasion of the strong impression of an internal voice. A step further and he is tormented with the most urgent impulse to utter the offensive word aloud or in a whisper, is in the agitation of continual struggles to prevent such utterance, fears that he may have uttered it unawares, and is horribly afraid that the impulse will, as it does sometimes, prove too strong for him to withstand effectually: the cortical word-reflex is pressing hard to its natural outcome in the actual utterance of the spoken word through its appropriate sub-cortical motor mechanism. Not always, however, in such cases is there the urgent tendency to utter the word, or what tendency there is may be easily repressed; instead of the pressure to the motor outlet, the morbid activity of the cortical reflex may affect chiefly the sensory terminal, when the result is actual hallucination of hearing. Then he has not the least doubt that he hears the word actually spoken to him. The hallucination appears to be the counterpart on the sensory side of the utterance of the word on the motor side; in both cases the morbid energy has overflowed its internal cortical bounds, and pressed upon the subordinate parts so as to be or seem external.

Further illustration of and insight into the probable nature of the functions of the cortex might without doubt be obtained from a close observation of other phenomena of

¹ Of the same character were the 'locutions' by which saints and sinners have held communication with the supernatural. Describing how the speech of an angel flows into a man's thought by an internal way into his organ of hearing, and thus acts upon it from within, being *sonorous* because it affects the organ of hearing, Swedenborg says: "That the speech of an angel flows down from within even into the ears, was proved to me by its effect upon the tongue, which it also flows into and excites a slight vibration, but this vibration is not a local motion such as takes place when the sound of speech is articulated in words".—*Heaven and Hell*.

mental disorder. Well deserving consideration in this relation are the features of that derangement which, beginning as simple mental excitement, mounts in *crescendo* scale to an acute mania, and ends in utterly incoherent delirium. In order best to appreciate their nature, the motor side of them should receive particular attention. Before a person falls into acute mania there is commonly notable a precursory stage in which he is unduly excited and elated in thought, feeling and conduct, self-confident, happy, talkative and busily active—behaving, in fact, very much like one who has taken too much wine or other alcoholic stimulant—but not deluded nor incoherent. The forms of his thoughts—their proper cortical patterns—are maintained, and their associations take place normally, but with abnormal ease and rapidity; the cortical reflexes being in a state of undue excitement, he thinks and feels, just as he moves, with an extraordinary energy, alacrity and ease. All that he has visibly lost are the most refined social inhibitions, which go along with a more quiet and inter-restrained function of the supreme centres and with a corresponding self-restraint; he is insensible to the most delicate shades of moral feeling and less observant of the nicer social proprieties than when he was his true self, is more self-regarding and self-assertive, has his real *Ego* spoilt to that extent. From this stage he passes after a while into a state of ordinary acute mania, when he is something else than the hard, unrefined, brilliantly accentuated copy of himself. The normal forms and associations of his thoughts are now no longer maintained; irregular combinations and associations of tracks take place, for the most part temporarily formed and unformed, but some of them perhaps so lasting as to keep up a predominant activity and to give rise to more or less system amidst the general incoherence and transient illusions and delusions; while his disorderly movements, whether aimless and fantastic, as some of them are, or as exhibited in his turbulent and disorderly conduct, answer to the internal state of mental commotion. All this while, be it noted, consciousness and the fair semblance of voluntary action are maintained. Nobody could possibly have a greater certitude than he has that he is acting with perfect freedom of will; all that he does is wrong, and some of it alarming, but he knows what he is doing, and is vastly pleased with himself the while and with the consternation which he creates; his movements are not convulsive, they have the air and form of voluntary acts. Some evidence of method is manifest in his mania and in his conduct, and he may even control himself

for a short time if he pleases, although his exuberant energy soon gets the better of him ; for he has lost the quiet strength of order and constructive doing, and displays the turbulent activity of disorder and undoing. It is not the finest social inhibitions only that are gone now, as in the beginning, but the social order of thought, feeling and conduct : he has not lost consciousness of his surroundings, but social feeling and apprehension of them, being entirely out of touch with them, a discord in the social organisation, a law unto himself in lawless behaviour. Necessarily the social nature in him, implicit in his finest mental organisation, has been shattered by the disintegration which the functional integration of his supreme nerve-centres has undergone : an example of the regressive undoing in the individual of the latest and least stable gains of the progressive development of the kind.

Going a step farther in observation of the features of degeneration of function along this line, we are confronted with a form of acute mania in which the mental disorder is so intense, so active, so incoherent, as to merge into actual delirium, and which is known, therefore, as acute delirious mania. There is no system now in the frenzy or in the conduct which are both utterly incoherent and anarchic. All the normal forms or patterns of the combinations of cortical tracks have been broken up, and the combinations of them which take place are partial, tangled, disorderly, fugitive ; wherefore there is no show of system in the delirium, and the raver seems unconscious of his surroundings, or at any rate is not conscious of them in their true character so as to make the least intelligent response to them ; he is scarce capable of momentary attention or of definite delusion. The movements, like the thoughts, are aimless and confused ; for the most part there is purposeless and unintelligent resistance to everything that is done for him, and equally purposeless and unintelligent struggles to do he knows not what ; he is urged by irresistible impulses to act, without any consistent design in his acts, which evince the fragments only of design. Nevertheless, the movements are not truly convulsive ; they have the voluntary forms in disconnected parcels or sections, without the co-ordination in gross of proper voluntary action : the meaningless phrases which he iterates, the howlings, the jumpings, the grimacings, the gnashing of his teeth, the disjointed struggles, which he perpetually repeats in a monotonous and quasi-mechanical fashion, evince the remnants of voluntary form, although entirely beyond voluntary control. In short, it is not the direct motor mechanism which is primarily at fault, I believe,

but the psychomotor mechanism ; there is presumably a morbid condition of things in its motor areas which, if it occurred in lower motor areas, would be the conditions of actual convulsions ; all the more probably since when matters go from bad to worse the frenzy ends sometimes in general epileptiform convulsions and subsequent coma. We may understand, then, how it is that such a one sometimes looks as if he knew all the while what he was doing and was instigated by a spirit of perverseness, while at the same time he is demonstrably insusceptible to rational influence and incapable of self-control. What moves him is probably a vague, vast and horrible, internal turmoil of distress, un-realizable by sane feeling as it is incommunicable by ordinary language, out of which emerge in ever-changing confusion formless apprehensions and fearful hallucinations. To an insane as to a sane person the external world which he perceives and reacts to is the internal world which he feels and thinks. The voluntary semblance of his involuntary acts I ascribe to the abstract or representative nature of the psychomotor parts affected. The essential contents of the motor abstracts, now incapable of due association or communion among themselves, are displayed in their disconnected discharges on the lower motor mechanism ; in such explosive discharges they undergo decomposition, as it were, giving out explicitly in psychomotor convulsions what they contain implicitly in structure.

Psychomotor phenomena of a like convulsive kind testifying to a similar pathological condition of things are met with in some cases of chorea, where they have a very distinct and instructive character, while all degrees and varieties of them are presented by the vagaries of hysteria. These vagaries are notorious : sensibility lost in parts of the body at one time and in a little while restored ; paralysis or spasms of muscles where a short time before was perfect movement, and where in a short time there may be perfect movement again ; outbursts of emotional agitation expressed now in floods of tears, and now in convulsive laughter ; perverse or even vicious conduct pursued with seeming pleasure to the discomfort of self and the affliction of others, which may nevertheless be checked suddenly by the operation of a powerful moral impression ;— all these betray an instability of nerve-centres, which means a want of compact intercommunion and renders them apt to independence and inconstancy of functions. But what I wish to bring into particular notice here is the voluntary form kept up in movements, whether partial or more or

less general, which look convulsive; for a hysterical person who seems to be involved in the turmoil of general epileptiform convulsions will grab, and grasp, and strike, and push, and otherwise act in a way which betrays remains and degrees of method in their violence, and is inconsistent with true epileptic unconsciousness; while another will keep up the machine-like repetition of a particular aimless movement of face, body or limb with wearisome monotone for an indefinite length of time. In the former case, the psychomotor tracks generally are in a state of disordered activity; in the latter case, certain disordered tracks seem to have got into a state of exorbitant activity, while the rest are practically well nigh paralysed. With this tendency to exclusive action goes an excessive sensibility to the causes suited to put the special tracks in action, so that it is a continual marvel, in spite of continual experience, how acute the hysterical persons are to perceive and use the occasions of their exercise, and what adepts at simulation they become without knowing it; they have the show of designedly simulating when it is really only a part of themselves, not the whole self, which is in morbidly exaggerated function and playing aptly to the occasion.

Whatever name it shall be thought best eventually to give to these seemingly psychomotor disorders, it is practically as a study of convulsions that they may be dealt with. Beginning at the bottom, they are simply reflex spasms or convulsions, partial, or more or less general, marking disorder of the primary or spinal areas of grey matter; the simple organisation displaying the simplest and most general phenomena of functional disorganisation. Next in ascent, they are general convulsions of the whole muscular system, such as we see in epilepsy, indicating the implication, first or last, of the whole secondary mechanism of reflex action, for which reason, although general, they are more combined than primary convulsions, and have more the air of a terrible exaggeration of the forms of natural movements; the more complex and special organisation displaying more complex and special phenomena of disorganisation. Lastly, they are convulsions in which the convulsive element merges into the semblance of exaggerated and fragmentary voluntarism, indicating disorder of the supreme cortical mechanism, and varying in degree from the hardly appreciable involuntarism of some forms of hysteria, in which little will is lost, to the extreme involuntarism of acute delirious mania in which almost all evidence of will is gone; the most complex and special organisation, which is the least stable and most modi-

fiable, yielding the most complex and special phenomena of disorder. The supreme unity of will is lost, not because the supreme layer of mental organisation is paralysed and altogether functionless, but because the federal union or integration of parts in it has been destroyed, and, instead of communion or confederation of function, disorderly, dislocated, literally dissolute functions are displayed—the wrecked factors of lapsed will.

As it was, then, with the sound nervous system, so is it with the unsound nervous system; as it can do complex work of the mental sort without help or accompaniment of will or consciousness, so it can accomplish broken or disordered purposes when consciousness and will are not only powerless to prevent disorder but powerless to hinder themselves from being enthralled in obsequious conformity of disorder. In neither case are consciousness and will the actual agents; they are derivative, not original, exponents or indicators of what is being done, not the doers of it; and while the nervous system can work without them, in no case can they exist without its work, of which, indeed, at best they are only imperfect indicators. To leave the original out of account, and to take information only from the revelations of the derivative, is a strange way of aspiring to lay deep and fast the foundations of psychology: “C'est vouloir pousser le bateau dans lequel on est sans rien toucher au dehors”.

II.—LOTZE'S MORAL IDEALISM.

By G. SANTAYANA.

"BETWEEN the demands of our emotional nature and the results of human science there is an ancient ever-raging strife." This first sentence of the *Microcosmus* suggests the problem that Lotze's entire philosophy is intended to solve. Whatever value his incidental contributions to logic and psychology may have, his answer to this moral question is doubtless the most important and interesting part of his system. It is that which led to the system in Lotze's own mind, and that which will most recommend his system to others.

That this conflict between feeling and knowledge is only apparent is Lotze's first postulate. The argument is offered as evidence that the postulate is legitimate. Lotze does not sum up the results of science and say: 'This is the truth; let us see what comfort we can take in it'. Nor does he sum up the demands of our imagination and say: 'This is the ideal: let us see in how far the reality fulfils it'. That might be the method of one to whom the final reconciliation of feeling and experience was not an axiom. Lotze does not ask to what extent this reconciliation is possible; he assumes it to be complete, and then begins his investigations in the hope of finding his assumption corroborated. A consequence of this assumption is that he never leaves the demands of sentiment out of view when he formulates natural laws, nor natural laws when he formulates the demands of sentiment. Hence a certain lack of boldness in the general effect of his system; both the dogmas of experience and the claims of aspiration are minimised by constant comparison. This mutual control is not regarded by Lotze as an external check to the expression of either impulse; it only prevents the impulses overreaching themselves. For we begin always with the axiom that the reality must satisfy our moral needs. Any demand that things cannot satisfy is at once proved to be no genuine moral demand, but an exaggeration of sentimentality. And any scientific hypothesis that offends our deeper instincts is *ipso facto* disproved, and classed among those materialistic theories that far outrun possible experience. Evidently

such a method of mutual correction is sound only if the axiom on which it rests is true ; if, haply, the laws of nature were irreconcilable with our emotional demands, this method would lead to misrepresentation of both. Nor does Lotze wholly escape this danger ; yet his characteristic caution and his intimate acquaintance with several branches of natural science keep him comparatively free from the defects to which his method is exposed.

Lotze's system was practically formed as early as 1840 : we need not be surprised if the concessions made to science seem to us less ample than they seemed to him at that time. It was a great deal to give up vital force, and to acknowledge a universal mechanism. It was not denying much to deny evolution or the principle of the conservation of energy. The mechanism Lotze defends is, as he says, universal in extent and subordinate in significance. In the constitution of the world he acknowledges three distinct factors : the original matter, the laws of its motion and transformation, and the purpose or final cause of this development. The laws are universal because they are hypothetical ; they furnish the major of a syllogism. But for an event to occur in the world it is not enough that there should be laws ; there must be facts to which the law applies, data that by virtue of the law produce the event in question. Hence the subordinate importance of the law : what really determines the event is the presence of the data to which the law applies : these data constitute the minor of the syllogism, without which we should have no conclusion. And these data cannot in turn be explained by virtue of a law ; even the most complete formula of evolution would leave the atoms of the nebula, their number and their disposition in space wholly unaccounted for. These primary facts, on which all depends, are precisely what every law leaves unexplained, so that in spite of its universality a law is only a relative and subordinate principle of explanation. Even if we knew the entire history of things we should still ask for a justification of it. We should demand that this set of facts should have the sanction of some authority, that it should not impose itself upon us without a good reason. This good reason can be nothing but a purpose, and a purpose is the content of a judgment, not of an idea. It is not there by virtue of the presence of things, but by virtue of a value attributed to them. The purpose is never a real thing or a part of the object realised ; for so long as the purpose remains unfulfilled it is something that ought to be, but is not, and when fulfilled it is not a thing but a

relation, an action, an emotion. The purpose must not be regarded as the efficient cause of the process. It cannot be a ground of existence, but only a demand that what already exists should be a means to an end, and should be directed to an ideal result. The realisation of a purpose, says Lotze, is never the work of the purpose itself. The result must follow from the given reality according to general laws, and the purpose must be realised by their agency.

In this manner Lotze combines a belief in final causes with the doctrine of a universal mechanism. By mechanism, however, he does not mean either a material mechanism or a single quasi-mathematical formula, by which all phenomena should be determined. By mechanism he means simply government by laws of any kind. Mechanism can be psychical as well as physical; and physical mechanism has many forms and principles, such as gravity, magnetism, electricity and chemical affinity. These he conceives to be irreducible and fundamental; he deprecates the attempt to reduce all causation to one type. In this Lotze abandons the ideal of science; he gives up the postulate of the empirical intelligibility of things. To comprehend means to reduce to one type, to see in the unfamiliar a case of the familiar. And Lotze, in spite of his objection to reducing all events to one type, must himself reduce them to a small number of types; else all science would be annulled. The same method that has led us to reduce the multitude of phenomena to these few types might lead us to reduce them to one; and the same satisfaction that we find in the progress we have made, we should find in further progress. What test can Lotze have to decide where the simplification of natural processes should stop? Here we have a case in which Lotze's system of checks seems to work unfavourably. The check is external and arbitrary, and we cannot feel that it prevents conflict; on the contrary, it exemplifies the conflict.

An æsthetic ideal is what Lotze opposes here to a scientific ideal. The world must not become monotonous. If all events were of one type, nature would be the ceaseless repetition of one and the same act. All the variety we find in the world would be the subjective result of a process objectively everywhere the same; the variety of reasons for phenomena would disappear. Lotze is quite right. The reason for everything would then be the same sort of reason; always the cause of events would be of one type. And that is the ideal of science; doubtless the unattainable ideal, though to turn from it is to surrender the impulse to investigation. Were this ideal attained, there would be a

great monotony in the reason for the variety of things ; but the variety of things would remain. In feeling that the world would be impoverished by unity of principle, Lotze seems to yield to a popular illusion. The opposition to new theories is often founded on belief in the ability of a theory to change the facts on which it rests. Such is the force of association that if the theory is discarded the facts themselves seem to disappear. In so far, of course, as the theory itself is an object of affection, the dislike to see it superseded is natural and legitimate ; but this dislike is unreasonable when the old theory has no value but that which it borrows from the facts—a value that evidently will pass on to the new theory, should the latter be definitely accepted. The value is not, so to speak, the personal property of the theory, but the appanage of its office. And this is the case in the question before us. The variety of nature does not derive its æsthetic value from the multitude of physical laws ; but each principle of explanation acquires dignity in proportion to the value of the phenomena it explains. Theories are like money that has the value of the things it can buy. And the variety of the world would retain all its interest and charm if we could express the principle of its causation in one phrase instead of in a hundred. The only change would be in the theory itself ; but simplicity and comprehensiveness are the virtues of theories. The world as an object of experience would be no less picturesque for having a simple explanation, and the beauty of the explanation would be all the greater if it were simple and universally true.

Besides the typical unity of science Lotze asks us to give up the principle of the conservation of energy. The reasons for the second demand are two—first, the desire to admit action and reaction between body and mind, and second, the desire to admit new forces, new beginnings dropping into the midst of things and changing the direction of events. In defence of indeterminism Lotze invokes a need of the active and moral imagination, which certainly is very generally felt. Even if one does not happen to feel this need, and finds action and hope quite rational in the world of determinism, yet one cannot deny that the efficiency of mind and the freedom of indifference are among the usual demands of men's moral and emotional life. Lotze therefore is in his rôle when he defends indeterminism. In doing so he admits the utility of the hypothesis of the conservation of energy ; he approves of it as a scientific instrument. Nor is his own mechanical principle very different in practice from a principle of uniformity. The laws of nature, according to Lotze, suffer no exception. But the data to which they

apply are not in turn accounted for invariably by derivation from previous conditions; sometimes they are new data derived from nothing. Just as in the end we should have to admit an inexplicable set of facts, constituting the given reality, so at any point in the development of this reality inexplicable elements may appear. But when once created these new elements enter into the realm of general laws; their influence on the further course of nature is determined by those laws; only their original appearance was undetermined. Thus instead of a principle of sufficient reason we have one of adequate effect, and instead of a necessary cause we have an inevitable consequence of everything in the world.

This distinction is plainly of more consequence in morals than in physics. For if the consequences of any fact are fixed, they can be fixed only by a law that makes that fact at the same time the sufficient reason for those consequences. The reservation of the possibility of a new and unaccountable appearance at any time does not affect the method of investigation; the hypotheses of science can continue to be framed as before. The only thing given up is the hope that these hypotheses may ever be adequate to the reality and cover the process of nature without leaving a remainder. This is no great renunciation; for that consummation of science, even if devoutly to be wished, is by no one really expected. Granting, therefore, that we have good moral reasons for denying the conservation of energy, we cannot regard its surrender as of great consequence to science, if, like Lotze, we substitute for it a principle of hypothetical mechanism. If the consequences of data are fixed, it matters little if we can know these data only as accomplished facts. The theory of science is necessarily hypothetical; for the proof that it describes the reality we must constantly appeal to the perception of the moment. We do not invalidate the theory by saying that this continued appeal to the fact is needed not only to show us that there is a reality to which the theory applies, but also what this reality is and what basis it offers for the application of the theory.

A contemporary philosopher whose mission is to reconcile sentiment and science might be expected to say a great deal about Darwinism. Lotze says nothing. His system was finished in his mind before the vogue of evolutionary theories. When they arose he ignored them as hasty and imprudent, and as resting on an inadequate basis of fact. It is impossible, however, to believe that his dislike of them is wholly the expression of a scientific scruple. Un-

doubtedly his eagerness to reconcile the idealistic and realistic temper led him to turn away from the moral difficulties that such theories suggest. For an alliance between general laws and moral purposes is much more easily conceived when these laws do not involve a Penelope's task, in the destruction of everything evolved. And a much more uncompromising temper than Lotze's is needed to see in the survival of the fittest a justification of the struggle for existence. These things, therefore, do not enter at all into that science which Lotze seeks to reconcile with our moral ideals. The significance of his solution, however, might not be affected even if we insisted on Darwinian theory; some details might be changed, but the general character of the system might remain. The modification of the principle of cause in such a way as to admit new beginnings is the only concession that science must make in Lotze's system, and I see no reason why science should not make it. The other concessions are not strictly necessary to Lotze. And we may now see what moral advantages Lotze offers us in return for this slight scientific sacrifice.

Lotze's metaphysical system may be roughly described as Leibniz's monadology so modified as to admit uncaused events. The intrusion of these new beginnings involves a change in the theory of pre-established harmony. For whenever an unexpected change occurs in a monad the harmony between its development and that of other monads is destroyed; to re-establish it, we require the interference of a cosmic power that makes for harmony, and that so modifies the developments of the other monads as to make them correspond to the development of that monad in which the uncaused change has occurred. The general plan of nature can no longer be treated as a *de facto* correspondence among the necessary developments of various things. The plan becomes efficient. It is not merely a principle of being, a description of the actual arrangement of the facts, but a principle of change, a power. Had the series of changes been wholly predetermined in each monad, the harmony among the monads might have remained a mere fact, a beauty that things possessed; which from the teleological point of view might be regarded as their cause or justification, as their worth, but which need not have become a force constantly guiding and checking them. But indeterminism makes a dynamical monism necessary for Lotze. On the one hand he declares that the plan of the world does not involve or demand all the changes that occur in the world: these changes are often unaccountable and

spontaneous. On the other hand the plan or purpose directs what further changes shall ensue, so that order may be maintained in the world after the unaccountable changes have occurred.

There is no contradiction in this conception: a dynamic monism is the price Lotze pays for his indeterminism. And the conception, when expressed in less technical terms, is a pleasing one—one that has many analogies and habits of thought in its favour. If we try to conceive a wise and beneficent Providence governing the world, we shall arrive at a conception similar to Lotze's. The more current statements, which make the principle that directs things produce them in their entirety, really deny the idea of government, of providence, of beneficent activity altogether. The plan and purpose of things then become identical with their nature; no efficiency, no progressive and opportune application of the divine plan can be thought of: this plan becomes merely a description of the facts, the constitution of nature. Lotze's æsthetic and religious instinct has led him here to avoid the rash enthusiasm of those theologians who so magnify their conceptions as to make them formless. A God that accomplishes literally everything no longer has a definite function in nature: He is no longer a power that makes for righteousness; and although we may continue to use His name, we shall use it in vain, and the world will with perfect justice call us atheists. This is notoriously the case with Spinoza, and all pantheism has the same tendency. Lotze may be said to have reintroduced the idea of Providence into philosophy, where the notion of a divine being has been too willingly confused with a cosmic emotion. Those who adore nature in her nakedness should not seek to deck her out in the spoils of an historical deity.

Here and there Lotze himself seems to say that the cosmic purpose requires the appearance of the new elements when and where they do appear. This, however, would involve a teleological determinism inconsistent with his first principles. Such passages must be understood to mean that for the cosmic purpose to produce just the results it has produced up to a certain time, the contributions of chance must have been just what they were. So that in order that the world should conform to the ideal in this given way, rather than in some other way, the original data must have been what they were. Had they been different, the world, in order to produce the same values, would have had to move on different lines. The ideal, the goal of the world, is for Lotze a real end, which does not determine its means necessarily, but only determines them in view of given

conditions. Here again we see how moderation saves the ideas that an enthusiastic exaggeration destroys. If the purpose of the world required not only that certain values should arise, but that they should arise in given ways—in other words, if what is valuable is the whole world indiscriminately—no distinction is possible between ends and means, between good and useful, between purpose and fact. Teleology becomes a merely subjective and arbitrary method; everything is at once end and means for everything else. The attempt to make the world perfect leads to the denial of the validity of the idea of the good, since all attribution of value depends on the subjective interest that makes value arise. We are plunged into a pantheism toward which all the vague mistrust the world suggests is in reality justly felt. We have then a positive belief that the world realises an ideal, and that this ideal determines every detail in the universe, so that the omission or correction of the least apparent imperfection in it would in reality destroy its value and run counter to its principle. All our ideals, in so far as they condemn accomplished facts, are not only partial and human, but they are impious. The true value and perfection of the world requires that nothing should be realised but what is realised. The impiety of willing against God remains, indeed, necessary to God's own plan, and, therefore, in one sense innocent and proper, whenever it is actual. But this circumstance only shows how completely such a doctrine dissolves all our standards; even the excellence of being on the right side, of serving the general good, is lost through being evenly and inevitably shared by every existent thing.

This justification of everything, were it actually intended by Lotze, would in his system be much more objectionable than in Spinoza's, in which it undoubtedly occurs. For Spinoza has no God, properly so called; the world is not moral, and prescribes no particular form of being rather than another. On the contrary, it calls for every form of being impartially; and, therefore, being non-moral, it does not give the lie to our moral standards, to which, as moral standards, it is supremely indifferent, although, as psychological elements, they are essential parts of nature. Thus, although they are relative to our needs, we have a perfect right to treat our standards as absolute, since there is no other moral nature or law with higher authority. In the moral world our standards are absolute, and any crime against them cannot appeal to a standard and purpose above our own. But if we believe with Lotze in the moral and personal character of the cosmic life, in a conscious intention

and providence that guides the course of things in particular channels, and at the same time if we declare that everything is justified by the cosmic plan, we establish a moral being hostile to our morality, a god indifferent to human suffering, nay, delighting in it. For we have abolished the distinction altogether between ends and means, between purposes and conditions. The sanction of Providence has been extended equally and primarily over everything alike. No moral relations are possible between God and man; the only reconciliation lies in the annihilation of man's volition, whenever it does more than rejoice in the accomplished facts simply because they have been accomplished.

Lotze avoids these dangers by maintaining the distinction between given facts, laws and purposes in nature. The unity of the three powers is in their work, not in their nature and origin. They reduce to one process but not to one principle. The matter and the laws conspire to realise the ideal; but this is once for all the miraculous fact, it is an accident. The ideal does not demand this particular method of realisation; it might have been realised more quickly and better had the given facts been more favourable. Value does not reside in things indiscriminately, but belongs to them only in so far as they serve to realise an ideal, and this ideal is not a method or law, but a result—happiness. The happiness of the world, in order to be just this form of happiness, requires indeed precisely the actual series of past and present events; that is obvious enough. But different events might have yielded more and better happiness. Lotze is an optimist by temper; he feels that all conspire to a great and ultimate good. We should willingly co-operate, and be grateful. But he does not attempt to defend that theoretical optimism which calls this the best of possible worlds. It is justified now it is real by the values it contains; but these values are not unalloyed, and Providence might have had an easier task had Fate been more propitious.

In regard to Kant's formalism, and especially in regard to Hegel's, Lotze expresses himself with unusual energy. Hegel, he tells us (*Mikrokosmos*, iii. 43), saw in the preservation of the absolute idea not a means to the production of other goods, but an end in itself. Only the "most nonsensical form of mysticism" believes in purposes of the content and realisation of which no one is aware, or in goods that no one enjoys. "What is to be a good has the only and necessary locus of its existence in the living feeling of some spiritual being." "So long as we have breath we will fight against the starved yet so terrible superstition that,

lost entirely in the worship of facts and forms, forgets the significant aims of real, warm-hearted life, or overlooks them with incomprehensible negligence, in order to seek the deepest meaning of the world in the contemplation of the formula of evolution." Thus a great moral chasm separates the human and hedonistic standard of worth recognised by Lotze from the cruel theological optimism of the pantheists. Lotze speaks of the unity of the cosmic process, and of the plan of nature ; but this unity never constitutes for him the value and justification of what comes under it. It is only the condition and means of producing conscious and happy life. The essentially momentary although often repeated and sustained happiness of living beings is what alone gives value to the scheme of things ; such æsthetic and mathematical beauties as the scheme may possess have themselves value and existence only in emotion.

This rebellion against formalism undoubtedly puts Lotze on the side of common sense and human feeling ; it keeps him free from that sophistry by which some would persuade us that the value of the world does not depend on the good it contains, but that the good itself has value only because it fulfils a necessary function in the universe. Yet the subject is not so simple as Lotze's tone might lead us to suppose. For, granting that value belongs to feeling, we still observe that the production of this valuable feeling depends on certain material conditions. Now nothing prevents our discovering an analogy between the conditions of our happiness and the laws of nature : there may be some similarity of structure, some formal unity, between the world as a whole and that part of it we know to be an instrument of good. Suppose, for instance, the instrument of good in our case were a certain regularity or rhythm in our lives : did we discover the same regularity or rhythm in all nature, a legitimate analogy would lead us to regard all nature as an instrument of good. And in view of such a vast extension of the fields where values may be discovered, we should naturally cease to speak of our own feelings as the seat of value : we should regard intrinsic value as co-extensive with the analogy that shows nature to be an instrument of good. The form of nature, the type of events, would thus become the mark and condition of excellence ; to discover a particular type would be to discover the worth of what conformed to it. And, indeed, if we are to estimate the value of the world in any other way than by its influence on our momentary moods, we must make some formal principle the basis of our estimate. We must select some typical process, some ideal of life, and attribute intrinsic

value to all that exemplifies it. Our reason for selecting one typical process rather than another, however, must always remain a human and subjective reason. It may be some type of event that in our bodies produces pleasure, or it may be some type of life speculatively pleasing, and prized for its dramatic perfection. And if we attribute value to anything in nature beyond the scope of our personal experience, we must in fact be guided by some rather obscure and doubtful analogy of this sort. The value we attribute to our own past pleasures is often not a direct recollection of their emotional quality; it is often an expression of our present æsthetic and moral judgment on the type of life we were then leading. The worship of forms which Lotze condemns is therefore more natural and excusable than he seems to consider it.

And the happiness that, according to him, the world produces, and that constitutes its value, can be discovered only by applying to nature a vague analogy drawn from human emotion. The happiness that gives this great value to the world is not mine nor yours, but the divine happiness, in which you or I may have some part; and evidently the existence of this divine happiness is known only by bold conjecture. The difference is not great between a person who, like Hegel, finds the value of the world in the idea it expresses, and one who, like Lotze, finds it in the divine happiness it produces. For that it produces divine happiness we infer from its obeying some law, from its fulfilling some idea; and the only addition Lotze makes to Hegel's theory is to materialise it a little by regarding the expression of the universal idea as a source of universal delight. The implication of a soul or spirit in which this idea or happiness should reside is the same in both; only while spirit for Hegel means the presence of the idea and its expression in history, for Lotze it implies also an accompanying emotion.

By humanising in this way the idea of the 'World-Soul,' Lotze wishes to gain two objects. In the first place the rather ghostly objective reason becomes a reality if it is also an objective emotion; a hedonistic system of morals can now take cognisance of it, and the glories of a divine life can be weighed in the balance against human misery. And in the second place, a cosmic life so conceived can be easily identified with the God of religion. Lotze is professedly a peacemaker; his object is to give satisfaction to as many interests as possible. He recognises the grandeur of that cosmic movement which Hegel thought he had discovered: here is a type of the absolute that must not be abandoned,

Lotze seems to feel, since it is in the nature of a description of the reality, a principle by which the march of events may be comprehended, and the secrets of nature translated into the language of man. At the same time the insight thus gained is purely intellectual; at best an analogy is discovered between the structure of nature and that of reason. Our feelings and moral aspirations remain isolated and estranged in the midst of this comprehensible world; there is little comfort in knowing that we live and die according to a universal dialectical process. But suppose this process is the working of a living being who finds infinite happiness in his activity? Then, whatever accidents we may be subject to individually, the life of nature is worth living; it is justified not only to itself but also by our own moral standards. The things we prize are not indifferent to the universal powers; the whole world exists expressly for the production of that happiness whose value we so intimately know. Yet this conjecture—for it is nothing more—if made by a single philosopher hardly can carry with it that authority which inspires belief. The philosopher has merely thought out what would be satisfactory and edifying if it were true; the impulse to believe it true can hardly come from his arguments. If he is to convince in a matter so transcendent he must make himself the mouthpiece of a popular instinct; he must be able to identify his conception with the traditional idea of God. Only by so doing can he give his ideal the semblance and warmth of a reality. His reasoning may serve to clarify a little the religious conception, but his theories, to live, must be vivified by the contagion of popular faith.

Lotze's task, therefore, is the identification of a cosmic law with a personal God. The chief instrument used to this end is the doctrine of indeterminism. For it is the appearance of unaccountable changes in things that turns the law of their reaction into a principle of government and efficient control. If the unity or law of things were a mere description of them,—a passive beauty of their constitution,—it would be hard to see how this law or unity constituted a living intelligence and will. Or, if it were arbitrarily declared to be efficient and real, then the efficiency and reality of particular things would seem to be destroyed. Lotze, by his indeterminism, tries to give vitality both to the creature and the Creator. He does not wish to think that the process of things is the mere consequence of a single act,—of an original collocation of elements. He wishes that absolute independence and originality should not be confined to the primitive choice of things to appear as they did appear, but

should be distributed throughout the cosmic process ; so that at every point it may be possible that a new choice, a new and unaccountable fact, should repeat the original and miraculous choice of things to be as they are.

For Lotze, accordingly, the material cause of the world is not given once for all, but gradually. For a time the laws of nature rule over a material that remains unchanged, except by the operations of those laws. But now and then this material varies : new citizens, so to speak, are born into the state ; new atoms drop into the sphere of cosmic attractions ; the laws remain the same, but the data change of which the laws determine the effects. The virtue, therefore, which the reality shows in satisfying the ideal,—the miracle that independent and inexplicable facts should conspire to a happy consummation,—is not a virtue or a miracle found once for all and seen only in the whole of nature. It is a merit distributed among the parts of the whole, each of which, by an independent and timely entrance upon the scene, contributes its share to the fulfilment of the general purpose. The creation did not take place wholly at the beginning, but occurs partly also in us. Our lives are, in part, new creations, not mere consequences of what went before ; and that momentous responsibility that falls on the determining forces of the universe is not confined to the eternal matter and laws of the world, but falls also on the events in its historical development.

The cosmos, however, in which these accidents can occur is none the less a living whole,—a total every element of which affects every other. And the movement of this cosmos is towards an ideal goal : its life is the conscious life of a God who knows His purposes, and is in the act of fulfilling them. But, as in this life there are unforeseen accidents, it is not comparable to the running down of a machine wound up in the beginning, and which ought long ago to have come to rest if it tended to any specific end. The possibility of accidents gives the purpose of the world something to do : it must restore an ideal order. The ship must be headed anew in the right direction after every gust and wave. The objective point remains the same throughout ; but the course actually followed is not determined by it alone, since it does not wholly account for the state of things at any moment. The response to every given occurrence is, indeed, determined : the nature of the universal purpose dictates at every point what course the world shall take ; but at the next moment it may be necessary for the universal purpose to speak again, since the world may find itself aside from its intended course. Providence

thus has a constant and real function : it must react on chance.

This real function is exercised by a conscious will ; and we see how its influence, although exerted in every part of nature, is checked or interrupted by the accidents that intervene. Thus the cosmic life, although universal, has what is equivalent to an environment ; since the unforeseen and uncaused events it includes are independent of its internal principle. This quasi-environment is not, of course, an external agent ; but the unaccountable incidents in the life of nature, being inexplicable by its own law and condition, are practically equivalent to the interference of an external agent. Nature thus has a life ; an internal principle and aspiration, which is its purpose, playing with phenomena which enter its life but are not products of its principle nor necessarily favourable to its aspiration. It is exactly in this way that our own life moves : the person has a certain will, a certain store of accumulated experience and digested knowledge, with certain habits and maxims which constitute the personal character ; but these do not run out of themselves into a self-determined development ; they are subjected to varying conditions, and the life of the man consists in his reactions, the reactions of his character, on what is external to him and not a product of his activity. And yet these foreign elements cannot affect a man until they enter into his consciousness or produce some change in his body : they must be effects in him. Were they not parts of his life they might as well not exist as far as he is concerned. So also, in Lotze's conception of the cosmic life, there are events that the principles of the world do not account for, and reaction on them constitutes the activity of nature and the task of Providence ; yet these events exist only as events in nature, as modifications of the cosmic system.

It has been urged by some critics¹ of Lotze that indeterminism is inconsistent with monism and with mechanical law. And this in general would have to be admitted. But it is the beauty and peculiarity of Lotze's system that he modifies each of these doctrines just enough to make it consistent with the others. As I have tried to show, his mechanical law is only hypothetical ; it determines the effect of given data, but it does not exclude new factors side by side with these predetermined effects. And the monism is a monism of the actual, not of the potential ; at every moment a single power directs all that exists and fuses it

¹ See J. Wahn, *Zeitschrift für Phil. u. phil. Kritik*, xciv. 1.

into one dynamical system. But the monism is not a prophetic principle; it does not have power over the non-existent, nor ability to cause or prevent the appearance of new phenomena. A monism that covers everything, a principle that determines the relations of things throughout infinite space and time, would be inconsistent, not only with indeterminism, but with the fundamental conception of Lotze's whole philosophy—movement, succession of events, *Geschehen*. This is for Lotze the note of reality, the difference between things and conceptions. And the unity of the world is for him decidedly a reality, an act of consciousness, not a conception or description of an object. It is the actual unity of existing things, not the conceptual unity of infinite possibilities. And for this reason he is able to identify this unity with a divine life: a static monism describes the constitution of a world, not the action of a God. The real and dynamical unity of Lotze's world is essentially momentary; its historic unity is only comparable to that of a melody or a drama. At every moment an ideal direction is given to the world by the purpose that it pursues, exactly as we in accomplishing any task give an appropriate direction to our successive movements. And thus, barring inevitable accidents, a certain æsthetic and teleological unity does exist throughout the history of things. But this ideal and imperfect unity must be distinguished from the dynamical unity of each act; the difference is, in Lotze's own figure, that between the unity of a note and the unity of a melody, or between the unity of an act or feeling and that of a function or arrangement.

There is a danger, however, in this sort of monism against which Lotze has not sufficiently guarded. So long as the unity we predicate of the world is one of description or order, a formal or æsthetic unity, we have no difficulty in admitting unities of feeling, the actual moments of our consciousness, as elements of the whole. The world is one in the sense that it obeys one law, that the realities of which it is composed stand in certain relations to one another. We have a theory of the whole and experience of the parts; the units of feeling remain the real units, while the whole has only a unity of description. But if, like Lotze, we make the unity of the world one of feeling, a conscious act and moment of life, where is our own consciousness? If side by side with the universal consciousness, that consciousness is not universal; it is not the life of nature, but an element of nature. And if we say that our feeling is merely an object or part of that universal consciousness, we fall into the absurdity of denying the reality of the only thing we know

to be real—namely, our actual consciousness in its actual form. All the objects of our thought may, indeed, form part of the content of a larger thought. As our single pulses of consciousness include a great variety of feelings and ideas, so a universal thought, being actually and absolutely one act, might yet include everything we conceive of. All objects can without difficulty be supposed to be objects for a single moment of thought, since after all the richest conception we can ever have of things must in our case be the content of such a moment. But by no possibility can an actual unity, the unity of a moment of consciousness, be included and taken up into another unity of the same kind. The content of our lives may reappear; but the fact that it is to reappear in different relations, as an element of a wider consciousness, shows that the thought in which it may reappear is not our thought. The subject-matter may be identical, the act is distinct.

Lotze has not faced this obvious difficulty with all the frankness one might desire and expect. He continues alternately to speak of his cosmic principle as a natural law that embraces individual realities, and as an individual reality on its own account. And it cannot be both. It is true that Lotze's analysis of what constitutes a thing or substance has led him to some paradoxical definitions that may explain his attitude on this point, so fundamental in his system. A substance, he tells us, is the *property* a series of events has of *producing the idea* of a substance; or, again, a thing is the *actualised law* of its behaviour. These definitions may have some justification as applied to objects; material substance and visible things may be products or "actualised laws," because they may be unreal and merely phenomenal wholes. But undeniable psychic realities cannot evaporate in the same manner. The soul is doubtless a substance according to Lotze's definition; but the events of which it is composed have a much more solid and primitive reality than the idea their aggregate produces. So long as we speak of conceptions, there is no difficulty in making one idea include and involve another. But Lotze's cosmic soul, or rather its successive states, are not conceptions, but living realities. In these successive acts other consciousness cannot be included. In the idea of the entire cosmic life, our lives may be taken up, since that is only a historical unity. A man's life includes all his thoughts, because his thoughts are elements which make it up, the life as a whole being only an ideal existence, an æsthetic total. And so the life of a nation, or of the world, may include all particular lives, since we are here dealing with artificial and conven-

tional units. But if all Lotze's protests against formalism are to be taken seriously, he proposed to describe to us a cosmic spirit that truly lived, a spirit that had thoughts and emotions greater than those of men. We must, therefore, see how this promise is to be fulfilled.

The inadequacy of our reason to cope with questions of this sort may have appeared to Lotze a ground for treating them in the tone of poetry and pious eloquence. And we certainly can have no desire to make the inmost nature of things submit to our definitions and formulations. At the same time, so long as philosophers continue to see in these ultimate questions the ground and sanction for their other opinions, so long as the existence of God, the vitality of nature, and the freedom of the will are insisted upon as primary and literal truths, we have a right to demand what is meant by these phrases, and exactly what implications they contain. And a clear and definite statement of Lotze's position would have to take, I think, some such form as the following.

The mind of God surveys the world *sub specie æternitatis*. God has the *idea* of all reality constantly before Him. This idea, of course, includes the idea of all our experience, the idea of all the accidents that occur in the progress of evolution. The history of things is thus exhaustively grasped by the divine mind. But when we turn from the idea or knowledge in the divine mind to the reality known, we find that it is diffuse and multiple. The feelings and acts of consciousness that compose this reality are innumerable and of all grades of intensity and comprehensiveness. In this hierarchy of feeling the divine feeling is *primus inter pares*. It is the most intense and most comprehensive. It is that feeling in which the self-consciousness of the world resides, for it contains the idea of the law that governs the world and of all its exemplifications. A knowledge of the springs of one's action and an approval of them is what Lotze understands by personality. Therefore personality belongs properly only to the divine life, since in all other lives the idea of the entire system of its conditions is not attained.

In this conception Lotze follows and amplifies Hegel. In his system, too, perfect personality belonged only to those moments of life in which the Idea that governed nature was reflected upon, in which the principle of things was discovered. Then a mind became identified with fate instead of being subject to it. But Hegel allowed us to perceive that this identification was the exclusive privilege of the Hegelian philosopher in his sublimest moments. Lotze, on the contrary, demands an immortal Philosopher in whom is

the constant idea of the law and beauty of things. Yet this difference, although great, is one of degree only. Not every part of nature is self-conscious, not every part is aware of its guiding principle and of the guiding principle of the whole. There is a great deal more life in the world than the life of God, if by His life is meant that which is conscious of its own divinity. This, I fancy, no one will venture to deny. But it is possible to say that experience is naturally ascribed to a person even if at the time he is not conscious of himself as a person. It is sufficient that at some points of his existence he should attain self-consciousness and from these points should survey the surrounding experience and appropriate it as his own by recognising it to be the complement and condition of his present state. In this way we appropriate our dreams and scattered impressions, and call them our own. The relation that our moments of clear self-consciousness have to our moments of absorption in particular objects—our dreams and incoherent impressions—may be the relation that the feeling called *par excellence* divine has to the other feeling that exists in nature.

There is a sense, then, in which even our own life may be said to be part of the divine, since it may be appropriated by the actually divine moments as involved in their own nature, as complementary exemplifications of the law of which they contain the idea. But what really embraces God and man in one unity is a law, an idea; in the actual unity of God's thought is only the representation of our thought and feeling, just as in the actual unity of our feeling is only a symbolic and ideal representation of the thought of God. Divine life may be represented in ours by an immanent ideal, by the sense of what we might be could we transcend all our limitations. And in the divine life ours may be represented as the ideal realisation of a plan, as the object of creative will. But in all such speculations one thing is excluded, because it is a contradiction in terms: that a limited thought should be an all-inclusive thought, that what is conscious pain here and now should be, *in actu* and not in a representation, part of an eternal pleasure.

The cosmic unity, then, that demands in each thing changes corresponding to those in every other is an ideal unity, a law, not itself a thing; or if Lotze insists that it is a thing, he can call it such only by virtue of his definition, which makes substance a quality or ideal effect of elements more real and primary than substance itself. But while his metaphysical monism thus reduces to a mere definition, his theological aim is satisfied. The monism being formal, the theism can be real. Under the cosmic

law arise thoughts that comprehend it and feelings that approve it. These compose the life of God. The cosmic law is not efficient; it is a mere scheme of description, a statement of the order in which realities arise. Efficiency belongs entirely to the realities themselves, and chiefly to God as the only constant and perfect reality. His efficiency consists in knowledge of what happens and in will that it should happen; but these events are not in Him, since they are essentially finite and transitory, although undeniably real—being, in fact, our own thoughts and feelings. When anything arises according to the idea and intention of God, it is created by Him. That is all that creation or voluntary production of any sort can imply. When anything arises not according to God's idea and intention—and we remember there are such accidents—it is one of those ultimate data with which Providence deals, one of those conditions out of which the divine wisdom brings forth ideal order. For God, since He sees things *sub specie aternitatis*, these conditions are all present from the beginning, as well as the process that ensues; but for us who are parts of the process, the conditions are still in part future; for the matter with which God works is not a given number of atoms, but the series of unaccountable and accidental events that break out in the course of evolution.

If this interpretation of Lotze is not erroneous, he has admirably succeeded in combining into a system the indeterminism, the teleology and the theism in which he saw the demands of our moral nature. These, again, by the single concession of absolute uniformity in nature, can be combined with the results of science. And no one, I think, will fail to admire the beauty of this conception of the life of nature, and the ingenuity with which it combines various convictions which we all retain, although philosophers have often found them to be contradictory. The reality of events, the truth of our natural belief that something happens in the world, that thought, the demiurgus, has not yet finished his work, but continues to hammer at matter and transform it into new and unexpected shapes,—this conviction is reconciled with belief in universal mechanical laws. And the responsible and original decision by which things are what they are is distributed throughout nature, and not confined to the adoption in the beginning of a tyrannical constitution that allows no activity in the world but that which it directs. If the formulation of doctrines that appeal to mankind—if expounding to men what they really believe and are trying to say of the world—be the task of philosophy, Lotze has

admirably fulfilled it. As a description of the life of nature, absolute idealism, tempered by indeterminism and moralised by an efficient teleology, leaves little to be desired. The purpose of the world is the production of happiness : by this doctrine we escape a formalism that sees value in mere order without reference to the intrinsic worth of the realities involved. And the purpose is not accomplished by magic and irresistibly, as if by the *fiat* of the Creator : it is accomplished laboriously on a foreign material, furnished at incalculable times and places. Thus teleology does real work : it impresses an order on things not themselves produced *ad hoc*. This is one of the most subtle and beautiful parts of Lotze's conception ; we must distinguish the sense in which the elements of being come of themselves, without reference to the ideal, from the sense in which, at the moment of being taken up into the world, and by virtue of belonging to the cosmos, they become servants of that ideal. For the ideal is the heat that keeps all things fluid, and forms them anew at every moment ; and the contributions that the world receives from without are at once merged in it, and become a portion of its living mass.

To some, doubtless, it will seem that Lotze has not given much satisfaction to the demands of sentiment : he gives us no apology for Christianity, no assurance of immortality, no rigid optimism. But Lotze is a philosopher ; his function is to show us what values and beauties the world contains, not to promise us personal advantages, or soothe our private griefs. The seat of value, he says, is consciousness ; but chiefly the divine consciousness, which to us is revealed in beauty, in our own seasons of happiness, and in our faith in the deep roots that good has in nature. Our joy, however, is but an echo of that joy which sees the purpose of the world realised ; the goal of things is the happiness of God, although our happiness may be generously involved in it. It is an error to suppose that unless Providence works for our own greatest good, and satisfies all our aspirations, there is no real God, no divine benevolence, no possible worship. This is an exaggeration of pious egoism. The divine life, as Lotze conceives it, and as paganism represented it, may be its own purpose, it may feel no obligation to bestow on men the highest possible blessings, and yet it may be benevolent within limits, and regally kind. A naturalism like Lotze's allows only a divinity that grants to men what their life actually supplies, although it does not wholly exclude the hope of immortality. As Hercules for his virtue, or Gany-mede for his beauty, was admitted into the company of

the gods, so may any man live again in another sphere if the sense of the world, if the happiness of God, require and allow it. Anything so valuable in the eyes of the universe as to deserve more than an ephemeral existence, will be maintained in being. In this problematic immortality, as in much else, Lotze approaches the ancient conception of things. We are too apt to forget that paganism was a real religion, and the only sort that is possible, if we admit the finality of the world, such as it appears to us. Other religions have seen in nature a temporary setting for lives that, in truth, belonged to another sphere. But if we abandon supernatural conceptions, we cannot establish other relations between God and man than those which experience manifests. We may trace to Providence our successes and failures: and our consolation must be sought in the faith that nature's life is greater and happier than ours. The spirit of this system is the ancient spirit of contentment, restraint and silence. Religion is not the reversal, but the sanction of the judgments of the world.

Shall we say, then, that Lotze has succeeded, and shown how the results of human science may be reconciled with the demands of sentiment? He has succeeded, perhaps, in the measure in which, from the nature of the case, it is possible for one man to succeed. He has reconciled what seemed to him the results of science with what he felt to be the demands of sentiment. And this is no merely personal success; all those who share Lotze's point of view and associations, and they are many, will find in his solution a guide to their own. But, at the same time, it cannot be admitted that natural science is now, or need be in the future, content with the *rôle* Lotze has assigned to it; and much less can it be admitted that the demands of feeling are fixed and universal, or capable of any such definite expression as Lotze gives them. Science, after all, is a social possession, and, in spite of the uncertain limits of its domain, we have in science recognised authorities and recognised doctrines. Up to a certain point it is possible to say what are the results of science. But who is an authority in feeling? What doctrine is admittedly the expression of our moral needs? Hardly theism, and certainly not that very positive and conservative theism which Lotze requires. Much less the indeterminism of which he makes so much: when, like Lotze, we frankly reduce indeterminism to the intrusion of chance into nature, its moral value evidently becomes very equivocal. Indeed, there is no such thing as a stable and compact group of moral ideas to be weighed in the balance

against the results of science. There is some presumption in calling our personal or even national preconceptions the demands of the human conscience; and there is some danger in talking as if theories had any essential value other than truth. It is unworthy of philosophy to regard affection as evidence, or to contrive a compromise between sentiment and fact. Its business is rather to transform sentiment until it is in harmony with fact, to naturalise the soul in the realm of reality. Lotze may be quite right when he says the conflict between science and sentiment is perennial, but it is fought on ever-changing ground. Had moral impulse in all ages called for the same theories, they surely would have been established and made instinctive long ago, just as belief in other men's consciousness is established and instinctive. The truth is that sentiment clings to whatever beliefs are familiar, and, therefore, are associated with habitual motives and emotions. Some beliefs are certainly in themselves more sublime or flattering than others; but this sublimity or suavity will seem oppressive and degrading to those unaccustomed to them, while they seem inspiring to those accustomed to regard them as sanctions and supports. The case is like that of patriotism: one country is undeniably more beautiful and civilised than another, and yet every man's "moral demand" is for his own. And this is no natural limitation, no excusable folly: it is the expression of a natural piety and joyful resignation by which a man conforms to the inevitable conditions of his life. The conflict Lotze tells us of is not essentially a conflict between theories morally necessary and theories morally repugnant, but one between familiar theories, sanctified by innumerable associations, and unfamiliar theories recommended by new evidence. The ideas that are morally impossible to-day may be morally necessary to-morrow. Lotze has too much ignored this possibility. Yet the problem he set out to solve could itself arise only by virtue of this transformation of feeling. If our feeling of what naturally should be differs from our sense of what actually is, it is only because we live in an age of transition; the mind has emigrated, but the heart has remained in the 'old country'. Lotze's philosophy is an admirable expression of this state of things; his solution is ingenious and suggestive in many ways, and has its reality and importance for us now. Only it lacks universality, it lacks the radical quality of nature's own slow but inevitable solution. This solution, Goethe tells us, is renunciation—a renunciation, however, that is not pure loss, but the condition of the only possible and permanent gain.

III—THE PROGRESS OF PHILOSOPHY.

By JAMES WARD.

[Prof. Campbell Fraser's article on "Philosophical Development" in the last number of *MIND* reproduced the substance of an Address which he delivered to the Glasgow Philosophical Society at the beginning of the winter session, 1888-9. Here follows, without alteration, the closing Address of that session.—Ed.]

THE words of Schiller which the Glasgow Philosophical Society has taken as a motto—

"Welche wohl bleibt von allen Philosophien? Ich weiss nicht.
Aber die Philosophie, hoff'ich, soll ewig bleiben"—

might, at first blush, be regarded as a confession at once of the hopelessness of the attainment and of the worth of the pursuit of philosophical knowledge. Hamilton, as we all know, held substantially this opinion, and supported it in his usual style with a wealth of illustration drawn from all quarters. In his first lecture on Metaphysics he says:—"The last worst calamity that could befall man, as he is at present constituted, would be that full and final possession of speculative truth, which he now vainly anticipates as the consummation of his intellectual happiness . . . and the man who first declared that he was not a σοφός, or possessor, but a φιλόσοφος, or seeker of truth, at once enounced the true end of human speculation and embodied it in a significant name". Now, I do not propose at present to controvert this position either wholly or in part, but merely to suggest that in whatever respects it is true of philosophy it is true of the several sciences. We might just as well ask, Which of all the physics, or which of all the chemistries remains? as ask, Which of all the philosophies remains? No exposition of a science, no matter what, that is a century old, would be considered adequate to-day; and *the* science, absolutely regarded, is as much as ever an ideal. We talk of the sciences as if they were completed wholes, whereas all that exists in fact is but a collection of approximations—partial, inchoate, imperfect. Archimedes, Galileo, Newton, are immortal names in the history of physics, but Newton's *Principia* is no more *the* science of physics than Euclid's *Elements* is *the* science of geometry. The progress of all the sciences shows the same essential

features: isolated truths come first, and principles last of all; working hypotheses, like rudimentary organs or temporary scaffolding, lead to the establishment of laws by which they are refuted and superseded, or they themselves are confirmed as permanent constituents of knowledge by a more or less gradual process of verification; resemblances undetected at first relate the many with the one; closer scrutiny discloses composition and complexity in what had long been regarded as without parts and without structure; and even that thickest of all veils—familiarity—is pushed aside, so that boundless fields of inquiry stand revealed where never a question had been asked before. With many differences in detail, this and the like is what we find, in the main, in every department of knowledge; and it seems fairly obvious that it must be so, since Mind is one essential factor in knowledge, and the only one that is the same in all. What I would venture to maintain, then, is that philosophy, as regards its history and development, does not differ *in genere* from the body of the sciences. In intent it is as legitimate as they are, and, allowing for differences of subject-matter, it has advanced about as much. Just a word on each of these points.

Without wasting time in any discussion about the precise definition of philosophy, it ought to be allowed to us that the problems of philosophy, whether soluble or not, at least start from and arise out of knowledge that we already have; and more than that cannot be claimed for the problems of any science whatever. Perhaps the true character of philosophy is nowhere more conspicuous than at its very dawn, when we see it, as Ferrier has remarked, in immediate contrast with the mythology it supplanted. The one, directed solely by poetic fancy, provided a deity for every hill and stream, for every wind that blew, and every star that shone; the other, possessed by the idea that there is an *ἀρχή* or first principle underlying the endless variety that appears, though it failed utterly to find what it sought, nevertheless “inaugurated a new epoch, and gave birth to science among men”. The problems of philosophy and science were at that time merged in one general attempt to generalise and simplify the endless particulars and bewildering diversities of sensible experience. In these later days, when many sciences in succession have been differentiated from that nebulous beginning, though the central problem still remains, it is now separated by a vast system of orderly knowledge and far-reaching law from the concrete manifold of sense. And since it is assumed that all we

know is to be found in this imposing circle of sciences, philosophy is once again brought into comparison with the mythical; but this time only to be identified with it, when proud *savants*, forgetful of their sires, ring the changes of their despite, as they consign first the mythical, then the metaphysical, to a common oblivion. Both, they affect to believe, are the creatures of imagination, with this only difference: mythology is the inflorescence or rancy, metaphysics but the cobwebs of the brain—that sort of mouldy, cryptogamic inflorescence that a fungus will produce. For all such conceited *persiflage* there is not, I believe—at least if we look at the history of knowledge broadly there is not—one iota of justification. We cannot, of course, deny that philosophers did often lose themselves in a world of dreams, abstracting when, as Bacon says, they had better have analysed, and concerned about the phantoms of the cave or the schools when they should have essayed to interpret nature by the dry light of reason. But all this, rightly regarded, was but a mistake of method—a mistake that vitiated all investigations alike—being, in fact, almost, if not altogether, inevitable. For just as childhood precedes manhood, so preconception, dogmatism, deference for authority and tradition come before the cautious, critical, all-exacting spirit that yields to evidence and nothing but evidence, owns no bias and no fears, and bids even reason to justify herself and disclose her limits.

Listening to contemporary detractors of philosophy, one might suppose that the sciences had accomplished their own emancipation, while philosophy alone remains still befooled by empty but imposing conceits. The truth is rather that all the emancipation the sciences can claim was wrought for them by philosophy; wrought not by those who were the representatives of the modern *savant*, but by men who in these days would be stigmatised as “genuine metaphysicians”. When the history of modern thought lies far enough in the past to be comprehended as a whole and in its true proportions, it will be seen, perhaps, more truly than we can see it now, that what might be called the dogmatic stage ceased and the critical began at the same time both for science and for philosophy; it will be seen, too, that the men who inaugurated the change were really philosophers, *i.e.*, men of reflection, though they were often scientists or men of research as well. Galileo (in 1610), at the age of forty-six, said that he had spent more years on philosophy than months on mathematics. Descartes’ account of himself (in 1637),

when he was only a few years younger, shows that philosophy had a similar preponderance with him. By these two men, it is allowed, the foundations of modern exact science were laid. Nor can it be said that they were great physicists spite of their early philosophy, as one might perhaps say they were great thinkers spite of their early scholastic training, which both alike soon outgrew and cast aside. Dühring, in his *Critical History of Mechanical Principles*, shows at some length that genuine speculation was throughout the prompting and informing inspiration in the ascertainment of these principles. In Galileo and Descartes, certainly, we find no traces of the over-vaunted Baconian method : it was from ideas, not from facts, that their insight came. Instruments and industry were all very well, as Lagrange has said, for the discovery of Jupiter's satellites, the phases of Venus, the solar spots, and such like ; but to analyse and unravel the primary laws of nature called for genius of a philosophic mould. It shows nothing but ignorance, though unhappily ignorance that is very widely spread, to suppose that, whereas modern science is a new birth, separated by a catastrophe from the astrology, alchemy and magic of the dark ages, modern philosophy, having learnt nothing and forgotten nothing, is but the survival of Scholasticism. Flippant references to angels dancing on the point of a pin, or to chimæras buzzing in a vacuum and fed on second intentions, are still considered not an unfair parody of the "genuine metaphysician's" inquiries. It would be easy to retaliate. Anyone who would be at the trouble to search the Royal Society's *Transactions* for fifty years back and more would find as much arrant nonsense as, and more bad reasoning than, he would easily discover in as many pages of the old Schoolmen. Modern philosophy is quite as truly a new birth as modern science ; and the founders of modern science in breaking with the old philosophy did not abandon philosophy altogether. On the contrary, they founded the new science on a new philosophy, and but for this new philosophy the new science would have been a very feeble thing and its future would have been most precarious and uncertain.

It has to be remembered that, although—wherever the human race has been sufficiently advanced—the philosophic impulse has invariably been *one* factor in human life, it has never been a factor independent of all others. As I have said, the *quesita* of philosophy have always been determined by what were regarded as *data* at the time. Thus the business of philosophy being primarily formative, any

defects in the empirical matter supplied must have told disadvantageously on the system constructed. Moreover, philosophy has to take account of much besides the current *knowledge* of the time—ethical and religious ideas fall equally within its ken. And there is still another point to note.

Looked at broadly, the history of philosophy may be regarded, to borrow an idea from the late Prof. Harms, as philosophy experimenting. The experiments were very different in kind from those of physics and chemistry. Still they are entitled to be called experiments, in so far as they were so many mental manipulations of the theoretical and practical stuff of life with a view to the discovery of its hidden springs and inner unity. In these experiments we observe a twofold procedure, sometimes one, sometimes the other, being the more prominent. At one time, that is to say, philosophy was mainly intent on organising. At another, the failure of such attempts led to a new scrutiny of the material to be organised ; in a word, constructiveness yielded to scepticism or criticism. The longest and the dullest period in the whole history is that preceding our own—a Sahara of 1000 years, which Hegel advises us to traverse with seven-league boots. In this period, say, from the 6th century to the 16th, a powerful Church, the sole depository of knowledge, was bent on constructing out of the traditions of the Greek schools and the dogmas of the Christian faith one harmonious and rational system. The very endeavour is itself a most impressive proof that the philosophic spirit once there cannot be eradicated, and cannot be smothered. Under any circumstances, there must have been much that was transitory and provisional in the philosophy of such a time ; but, as it was, there seems literally nothing of all the vast fabric that has remained. Yet there was progress—the only progress possible with such material. For one thing, the formal apparatus of thought was enormously improved in “precision and analytic subtlety”. It is noteworthy that J. S. Mill quotes the testimony of Condorcet to this contribution of the Schoolmen to the progress of good philosophy as a fitting motto for the opening of his *Logic* ; and it is perhaps not generally remembered that Mill himself, disgusted with the superficiality of Aldrich, applied himself instead to a careful study of scholastic logic. But to the Schoolmen we are indebted for progress in another respect. It was they who began the struggle for the emancipation of reason ; at first, more or less peaceably under cover of the doctrine that there are two kinds of truth—book-keeping by double entry, as it has been profanely called—a doctrine that could hardly

stagger theologians wont to talk of a sevenfold interpretation of Holy Writ. The attack on authority thus covertly begun led on, of course, to the open rupture which ushers in the modern period.

But neither the logical apparatus of the Schoolmen nor the emancipation of reason can be regarded as properly parts of philosophy. However vitally they concern it, they are still but circumstances outside it ; so that, as regards the actual succession of philosophies, there is nothing between the ancient period and the modern. But what we now call science, as distinct from philosophy, was, if anything, in a worse plight. The historians of science do not forget this. Thus Bacon refused to take account of more than six out of the twenty-five centuries he reckoned from the dawn of history as either *scientiarum feraces earumve proventui utiles*. Again, Whewell's name for the middle ages is the stationary period. When philosophy is talked of, this sterile waste is most unfairly included with the rest. In fact, what hindered the advance of knowledge in one direction hindered it in all; and so soon as freedom of thought and inquiry was achieved, speculation and positive science moved on apace.

This brings me at length to the second of the two points mentioned just now, *viz.*, that, allowing for differences of subject-matter, the advance of philosophy is quite comparable with that of science. Of course, anything like direct comparison is impossible, just because of this difference of subject-matter. Who can say what philosophical truth is to be set off as equal in importance with the law of gravity, or how many scientific theories can outweigh Kant's formulation or solution of the question, How are synthetic propositions *a priori* intelligible? In these days of universal examinations, no doubt still stranger comparisons are made: when, *e.g.*, A, who writes a sonnet, is adjudged equally deserving of a fellowship with B, who has ascertained all the primes between 19,000,000 and 20,000,000, or with C, who has discovered that in the tadpole's economy there is a special class of cells for the absorption of the tail as soon as that juvenile appendage is done with. But in all these cases what we really compare is the ability of the worker: and we assume that the best work in one department is equal to the best in another; and, generally, that excellence of about equal rarity is of about equal value. When in this fashion we compare philosophers with other men, we have nothing to fear; and, fortunately, in almost every case a circumstance comes to our aid, which perplexed examiners

always hail with especial delight: the best philosophers were what we in Cambridge call "double firsts". Leaving aside Plato and Aristotle, and confining our notice to modern times, when philosophy is regarded as a distinct pursuit (so to say, as a profession), we have, along one line, Bacon, Locke, Berkeley, Hume; along another, Descartes, Leibniz and Kant,—all unmistakeable "double firsts". Everyone of these men would remain highly distinguished on the score of literature, science or politics, if all their philosophical work were counted as nothing. But what we have now to estimate is not the men, but their work; and the question is, whether the men of philosophy have advanced, as the men of science have; or whether they are only marking time on the old ground, and are now left far behind.

What the truth is in this respect might perhaps be effectively realised if we were to imagine one of those old sages from Miletus—or even a thinker so recent and of such abiding influence as Descartes—to come to life again, and hear all that has been done in science and in philosophy since his day. He would be told that all the varied forces of nature are but various modes of transformation of an energy that is changed in form continually, but never destroyed; that all the so-called elements furnish evidence that they also are but modes of one primal stuff—inert, impenetrable and indestructible; that, in an equation involving the three fundamental units of time, space and mass, a complete account could be given of all that really happens in any material system, large or small, as it changes from one given configuration to another; that life, *for the spectator*, is ultimately resolvable, without residuum, into such a series of physical changes or reflex actions; and that mind, for the spectator, is in like manner ultimately resolvable into life. The Ionian philosopher would probably be a good deal less impressed than we should expect. The sublime generalisations, the splendid analyses of modern physics, would seem only to bring us back again to where he was in the sixth century B.C. Then it was the simplicity of ignorance; now it is the simplicity of knowledge. The countless phenomena carefully ascertained by thousands of observers and experimenters, which might have defied all attempts at system, are no obstacle after all: there is a principle underneath phenomena, and all change is according to law. The naturalness of this result, so to say, would prevent astonishment in one who knew nothing of all the inductive methods, experimental devices, elaborate instru-

ments and tedious calculations by which so very obvious and necessary a truth had been empirically won. *Artis est celare artem*. The master-key is, to look at, the simplest key of all, and is most a wonder to him who has made it. Similarly here.

As for Descartes, he, no doubt, would fully appreciate the triumphs of modern science, and the narrative would fill him with pride. Did I not say, he would urge:—Grant me extended substance and motion, and I will start afresh, and reconstruct the world? He had not hesitated to extend his mechanical theory to brutes, and even to man—so far as sense and imagination are concerned. On every side, he would see only the substantial confirmation and consummation of his own views. Thus, neither for the father of ancient philosophy nor for the father of modern would there be anything altogether unfamiliar in a summary of the present state of science: they would not, as is sometimes supposed, be comparable (let us say) to a couple of trilobites of different silurian eras reappearing in a cretaceous sea. They would see that knowledge had advanced, but the standpoint of exposition would be the same.

But, in turning to philosophy, the situation would be quite otherwise. The ancient who would readily take in "the recent advances of physical science" would probably have seen in these all the philosophy for which he felt a need: at any rate they would follow on, and fill out the formal outline of knowledge he had himself conceived. But in the philosophy of these days he would find previous questions raised, of which he had never dreamed. To form any idea of these he would have to learn to regard knowledge itself as a problem, and to surrender the very *δὸς ποῦ στῶ* of all phenomenal achievement for analysis and conscious reconstruction. He would need to see that it is not enough to understand the world as it is given, to organise and unify experience, but that this systematic unity must be itself understood. Like some fabled artificer who, as he polishes his rough silver slab, finds the dull and opaque turn bright and translucent, till at length he discovers himself reflected in it and sees beyond and through his work his own form revealed, the Ionian thinker might surmise that the perfecting of the objective hemisphere of knowledge had revealed the subjective, making it possible to test the accuracy of the external by its perfect reflexion of the internal, or to examine the internal thus projected and made large. This would be to him a most impressive advance.

To Descartes *redivivus* the changed face of philosophy would

seem less strange and more intelligible; but the change would perhaps strike him more, and would certainly please him less, than the changes in science. *He*, of course, would fully understand the problem of knowledge, and might see at once that his own solution had been in part false, in part superficial. His sole criterion—*logical* clearness and distinctness—he would see ravel out the whole tissue of knowledge into the meaningless identity A is A , and end in the *reductio ad absurdum* of the Wolffian philosophy, poised like an inverted pyramid on the principle of contradiction—only stable, because it is empty and bound to topple over in search of a base the moment it receives the smallest real content. The distinction of pure intuition and pure understanding (of which he had had an inkling, but which, as alien to the leading idea of his own system, had remained only an unfruitful excrescence, atrophied and ugly), he would see developed by Kant into the cardinal doctrine of the two stems of human knowledge—whereby an escape was possible both from the empty formality of his own rationalistic successors and the blind scepticism of their empirical opponents. He would realise that there is more in geometry than clear thinking, and see that a philosophy wrought out *more geometrico* is for ever an impossibility: since geometry must rest on intuition (*i.e.*, spatial perception), and philosophy start solely from the analysis of notions. It is true, I should say by the way, that Descartes only attempted the treatment of philosophy according to the geometrical method as an experiment on the suggestion of his friend, Mersenne, and was careful to point out that, “in so far as that method is synthetic, it is not so applicable to metaphysical truths as to the elements of geometry which have a relation to the senses”. Still this only amounts to the inkling I spoke of just now: Descartes did *try*, and was afterwards not unsatisfied with the result, leaving it as a suggestion to be developed by Spinoza, who represents the inevitable outcome of one aspect, at least, of Cartesianism. Besides the recognition of two factors in knowledge, which, in his imperfect analysis, he had almost overlooked, Descartes would perforce acknowledge advance as regards another point likewise hidden from him by his geometric manner—I refer to the necessity of the conceptions of Cause and End (or Purpose) to give unity to experience. Geometry knows nothing of experience, and nothing, therefore, of cause or process in any guise. What Spinoza did completely, Descartes had almost done, *i.e.*, identified cause with reason, and rejected final causes altogether.

Again, even if we put the most favourable interpretation possible on his doctrine of innate ideas, it is still only an assumption that cuts the knot : it does not make necessary and universal knowledge *intelligible*, and a necessity that is not intelligible is only a contingency after all. In a word, his doctrine of innate ideas is only a sort of a preformation-system, to use Kant's phrase. As Reid put it : " The power of judging in self-evident propositions may be compared to the power of swallowing our food. It is purely natural." We do it, just as " dogs delight to bark and bite, for God hath made [us] so ". This is better, certainly, than the *generatio æquivoca* of Mr. Herbert Spencer's book-plate, for it does recognise that knowledge cannot be explained out of the perpetual stimulations of sense, any more than a chunk of wood can be " licked into shape " as a top, and made to spin, by continually whipping it. Yes, it recognises the problem certainly, but it does not solve it. Descartes would have the less difficulty in acknowledging Kant as the Copernicus of philosophy, because everyone would admit that a psychological solution was the one naturally to be attempted first ; and because, further, there was not in his day—what, in fact, he had largely contributed to produce—a body of natural science which could prompt to a careful reflection on knowledge as a product, and make a transcendental logic possible. In Descartes' time, the only science there *was* was mathematics ; and this, as we have seen, would lead away from any attempt to frame a theory of experience in the Kantian sense.

This second mention of the philosopher's tendency, one might say, his function to set out by reflecting on the existing body of knowledge, suggests another line of remark concerning the advance of philosophy as compared with the advance of science. If we might illustrate the advance of knowledge as a whole by the figure of a clock, then science might be called the minute-hand, and philosophy the hour-hand, of this clock. They are both really connected and moving in the same direction ; and, though their rates of movement differ, this is compensated by a difference in the significance of their motion : one stage onwards for philosophy means a whole cycle of scientific progress. Now, that philosophy is never much behind we may see in another way, and that is by taking note of the little excursions into the groves of Academe in which men of science occasionally indulge. There is altogether quite a literature of this sort—a good deal of it in British Association addresses and the like : in that and other ways men of such eminence as

Huxley, Tyndall, Cayley, and I must not forget Prof. Tait,¹ with Helmholtz, Du Bois Reymond, Claude Bernard, and many others abroad, have discussed various marginal questions on the confines between their special subject and philosophy. I take up the first of these festive prelections that comes to my hand: it is a good specimen of the class, and will sufficiently illustrate what I mean. It is an address by Helmholtz, delivered in celebration of the founding of the Berlin University, and deals with *Die Thatfachen in der Wahrnehmung*. Let me quote one passage from the summing up:—“The causal law is, in reality, a law given *a priori*, a transcendental law. To prove it from experience is impossible; for experience cannot advance a step, as we have seen, without employing inductive reasoning, that is to say, without the causal law. Moreover, from what we have already experienced—even if we could certainly say that everything observed so far has happened according to law—we could only inductively infer, *i.e.*, by assuming the causal law, that the causal law would be valid in the future also.” After a little declamation and a verse or two from Goethe, Helmholtz goes on:—“In what to me has always seemed the most essential advance in Kant’s philosophy, we remain still at the level of his system. In this wise I have frequently in my previous works taken occasion to emphasise the agreement of the newer sense-physiology with the teaching of Kant, but without, of course, intending to swear by the *verba magistri* in every detail.” The whole address, in short, is little more

¹One instance of the spirit of this famous triton among the metaphysicians, this seer of the Unseen Universe, may perhaps be allowed as a note. In his excellent treatise, *The Properties of Matter*, there is a chapter on Time and Space that opens thus:—“We begin with an extract from Kant, who, as mathematician and physicist, has a claim on the attention of the physical student of a different order from that possessed by the mere metaphysicians”. Here follows about half a paragraph from Sec. 7 of the ‘Transcendental Æsthetic’ in which Kant is endeavouring to clinch his epistemological argument as regards mathematics. The “therefore” (*demnach*) of the opening sentence is however omitted, and without further word or comment Prof. Tait proceeds:—“On matters like these it is vain to attempt to dogmatise. Every reader must endeavour to use his reason, as he best can, for the separation of the truth from the metaphysics in the above characteristic passage.” On reading this, one wonders (1) whether Prof. Tait has any sense of humour; (2) what the residuum of truth is when the metaphysics is winnowed or washed away from this “characteristic passage”; and (3) why the physical student is called upon to exercise his reason upon it without a hint of the premisses to which it is little more than a conclusion!

than Kant assimilated and turned into Helmholtz. This class of literature bristles with references and choice quotations for philosophers of "our present level," to use Helmholtz's phrase. But if philosophy has not advanced, how comes it that scientific men, when they feel the deeper thirst, find their well of waters only in these latest springs? And how is it, when they want to blaspheme, that they fall back either on the crudities of some earlier philosophers or on the extravagances of Hegel or Schelling?

But now, although a dispassionate consideration might soon satisfy any open-minded inquirer that philosophy does move on, there are two or three reasons why it seems to have accomplished very much less than it really has. First, all unsolved and perhaps insoluble problems of any generality fall to the province of philosophy. Some of them go back to that nebulous beginning of all knowledge from which, as I have suggested, the sciences, like planets, have separated and condensed into definite form, and round which they still revolve. All the ultimate questions; all the antinomies, theoretical and practical; the relations of Thought to Being, of the Finite to the Infinite, the One to the Many; the crowd of unanalysed conceptions and uncriticised assumptions of everyday thought and conduct—these all belong to philosophy. It is something even to put them in order, reduce their number, show that some questions are at bottom absurd, and not only cannot be answered but need never be asked; to determine the definite issues within which the solution must lie, and so forth. But even, were all this done, the ultimate difficulties would still remain. Complete knowledge is an ideal; if we regard it as attainable it is infinitely far off. Now, when we boast of the advance of science, we measure the distance we have come, which is finite, so that future advances are comparable with it. But when we despair of philosophy we think of the distance we have to go, which is infinite, and must always remain so, unless, indeed, our rate of advance itself becomes infinite; that is, unless intellectual discursion should some day give place to intellectual intuition.

Another reason why philosophy is apt to appear practically stationary is that, as already hinted, any ground it does win from the void and shapeless infinite is ceded sooner or later to science; or if no science already exists to which it could be logically assigned, then a fresh science is constituted for the purpose. In this way, mainly, Logic and Psychology have arisen, and by such accessions from philosophy they are from time to time extended. And in this

way, too, Epistemology, or the science of knowledge generally, has arisen, and, as I venture, spite of the heresy, to think, has attained a large measure of independence. Just as most of the old Natural Philosophy has become the Natural Sciences, so much of the old Moral Philosophy has become the Moral Sciences. Philosophy proper still remains as the 'leader' or main growing-point of the whole tree of knowledge, and so regarded seems as inchoate and nascent as in the days of Thales or Pythagoras.

But now, in one respect at any rate, I think, we are bound to admit that philosophy in the stricter sense might have made more progress than it has. Perhaps it is an inherent infirmity, perhaps it is essential strength; at any rate it is true of most philosophers that they attempt everything. *Aut Cæsar aut nullus* is the philosopher's legend. In this spirit he sets to work himself: in this spirit he judges most of his predecessors. No doubt eclecticism in philosophy is the feeblest thing of all: rhapsodies and centos are absolute absurdities here. But it is one thing to take pieces out of different speculative systems: it is quite another to recognise and formulate a truth that has been found out before. A comparison of a History of Philosophy such as that of Erdmann or Zeller with such a History of Sciences as Whewell's or Dühring's would illustrate what I mean. In the history of science we observe continually that the propounder of a wrong theory has nevertheless ascertained some important law; as Newton, for example, ascertained the laws of the refractive dispersion of light, although his corpuscular theory as to the nature of light itself is false and has been overthrown. The law is remembered: the theory is forgotten. Now, in philosophy, as it seems to me, there are similar instances; but here it is the fashion, as the Germans say, to swill out the child along with the bath (*das Kind mit dem Bade ausschütten*). Locke and Hume, we are told, were sensationalists; Descartes and Leibniz were rationalists; and the insufficiency of both these theories of knowledge being made apparent, the only interest of the historian is to treat them as 'moments' in the general development of philosophy. It is not held to be necessary definitely to single out and emphasise the particular truths enounced by thinkers whose speculative standpoint has been superseded. The Dualism of Descartes and the Occasionalism to which it led; the problems of Substance and Cause, as propounded by Locke and Hume respectively; Hume's resolution of all the objects of human inquiry into two kinds—to wit, Relations of Ideas and Matters of Fact;

Leibniz's principles of Sufficient Reason and of Continuity,—these may serve as instances comparable in importance with the special laws of nature which the historians of science record. Now I would make bold to maintain that philosophy should have its *monumenta rerum gestarum*: its history should not give the impression of a series of failures—each thinker in succession being handled in accordance with the maxim, *Falsus in uno, falsus in omnibus*. Science treated after this fashion would scarcely fare better: but it never is so treated. The positive results, be they large or small, isolated laws or wide-reaching principles, are what the historian of science puts foremost. And whether it would serve all the purposes of a history of philosophy or not, something of the same kind is at least a desideratum there.

But anyone who should attempt to supply this want would be at once confronted with a difficulty; though the difficulty would be the amplest justification of his enterprise. He would find the same thing, essentially, said over and over again with accidental differences of statement, due merely to its place and purpose in the speculation of each particular thinker. In science, when a truth is made out it is definitely formulated and receives a name; there is Snell's Law, Boyle's Law, Avogadro's Law, Ballot's Law, and so forth. But in the whole region of philosophy, with the partial exception of Logic, there seem to be no rights and no rule. Philosophy has no nomenclature and no terminology. Every giant and every pigmy states and misstates and restates much as he wills: even babes and sucklings rush abroad brandishing the Infinite and the Absolute with infinite ignorance and absolute conceit. If there is anything fixable, why do we not fix it? If any of our conceptions admit of definition, why are they not defined? Such *axiomata media* of philosophy might gain or lose in comparative importance as time went on; but that is true equally of science, which still insists on precision as far as it goes. It is no uncommon thing—it is rather the rule—to find philosophers disclaiming any gradual completion of philosophy: they intend nothing short of *das All auf einem Male*. Thus not only the conceited Descartes concludes his *Principia* with the statement "that there is no phenomenon of nature whose explanation has been omitted in this treatise," but even "that most modest and retiring of mortals," dear old Immanuel Kant, while characterising philosophy on the lines of Descartes as "dogmatic swill" (*dogmatische Gewäsche*), is still persuaded that metaphysics, which on his view is the one science that can confidently

reckon on permanence and completeness, has attained its goal in the *Critique of the Pure Reason*. Of this much he assures us at the end of his *Prolegomena*, and in the preface to the *Metaphysical Foundations of the Natural Sciences* he again expresses the belief that this absolute completeness of metaphysics generally has enabled him to exhaust the special metaphysics of the material world. Of the still greater extravagance of those who came after him, I forbear to speak. Alas! the best of men are but men at the best. It is not given to the human intellect ever to soar: it can only climb. There are wide differences between science and philosophy, of course; but the truism just now urged in defence of philosophy against its vilifiers from the side of science, if allowed at all, must be allowed to cut both ways. If all departments of knowledge have much in common, since Mind, the most important factor in knowledge, is the only factor that is the same in all; then, while we may expect philosophy to progress as well as science, yet—if it claim to be knowledge—it cannot do more than progress. And, certainly, it would advance more rapidly and with more ease if the positions already attained were definitely set down and named.

But this leads us naturally to consider for a moment the present state of philosophy. There has been no philosophy in England since Hume, says one; and none anywhere since Hegel, says another. 'Back to Kant' is the recent cry in Germany, and I have known some in England who have cried 'Back to Reid'. But in truth I very much question if there has been any harking back at all. Systems of philosophy are no longer the fashion, certainly. But there have never been so many competent experts—as we say nowadays—at work on philosophical questions as there are at present; and never has philosophical literature multiplied at such an amazing pace. The great bulk of this literature falls into one or other of two divisions—historical criticisms or monographs on special points—such as Geometrical Axioms, the notion of Experience, the Relation of Body and Mind, and so forth. And even the historical studies which form the first division are mainly confined to special lines of thought—a history of the doctrine of Categories, the various forms of Idealism—or to special thinkers and the development of their doctrines. So that we may say generally that philosophical activity has entered upon a new phase; system-makers have given place to specialists. As in science, so in philosophy, ours is the age of monographs. Many are the Jeremiahs with a speculative turn who lament this state of things as an unequivocal sign of degeneracy and

disaster ; and nobody will maintain that it is an unmixed good. But then what is ? Certainly not the *Panlogismus* of fifty years ago. The history of philosophy is full of reactions ; and one might fairly say not only that the present state of things is one of these, but that it is a reaction caused chiefly by that exuberant system-making of which the Hegelian philosophy is the crown and climax. This is very impressively put by one bred and born in the school of Hegel, I mean by the venerable Edward Zeller—first in a once famous lecture on “The Plan and Problem of the Theory of Knowledge,” and afterwards in his *History of German Philosophy*. Referring at the end of the *History* to the movement in question, as one in which the rapid succession of comprehensive systems left speculation exhausted and forced at length to heed the demand for proofs, Zeller remarks : “On the one hand the flagrant contradiction in which their results stood when confronted with the empirical sciences shook the faith in philosophical systems first of those outside and finally of their own adherents. On the other hand, this state of things gave energy to the endeavour so to modify the principles and methods of philosophy, the materials of the empirical sciences being freely used for the purpose, as to eliminate such contradictions once and for all.” Then, in the concluding paragraph, having previously characterised German philosophy from Leibniz to Hegel as an almost unbroken Idealism, he continues : “In Hegel’s *a priori* construction of the universe this Idealism celebrated its systematic consummation. The stagnation of philosophical productivity which commenced at Hegel’s death, the gradual dissolution of the leading schools, the distraction and uncertainty which possessed everybody, plainly showed that the turning-point had come ; and when, hand in hand with the decline of philosophical activity, there came work the most diverse and most varied in the region of the empirical sciences, especially the natural sciences, it was thereby clearly indicated that the new philosophy must enter into closer relation with these sciences, that she must avail herself of their results and their procedure, and must supplement her former all too exclusive Idealism by means of a sound Realism.”

It is above twenty-five years ago since Zeller abandoned the Hegelian standard. The assimilation of philosophy and science which he foretold has well begun, in proof whereof is this continual production of monographs. Some fifteen years later the periodical known as *The Quarterly Journal for Scientific Philosophy* was set afoot, and the best of the younger philosophy of Germany comes to light through its pages.

Here thinkers of such repute as Paulsen, Siebeck, Benno Erdmann, Göring, Wundt and many others have given in their adherence to the position that—to adapt a dictum of Kant's—philosophy without science is empty and science without philosophy is blind.

But let no one suppose that Zeller or any of those I have mentioned intends for a moment that the sublime speculations of a Spinoza or a Hegel are to remain now and henceforth meaningless or useless. The point is that they do not belong to the problems of philosophy in the present. A vast gulf has disclosed itself between the knowledge so far attained and any Absolute Idealism that can claim to be more than a hope or a faith. Many a lofty mountain that appears to have an unbroken contour from base to summit, when we view it as a whole and from afar, discloses, as soon as the actual ascent begins, minor eminences and intervening valleys innumerable. Then, for those who can only climb, true progress requires that they lose sight for a time, perhaps for a very long time, of the final goal; and quite possibly the really highest peak may turn out later to be one not at first descried at all. So the matter stands with philosophy: to-day we are really further on and have no call to hark back; albeit the prospect immediately before us is not the grand panorama seen as in a vision by those who went before. It may be objected that on this view it is impossible to draw any line between philosophy and science. If this means that there is, or at any rate should be, continuity between the two, it must be granted. But it must not be taken to mean that philosophy is itself but a science. Philosophy on any view endeavours to make our knowledge and our practice as a whole intelligible. It is no more a part of the sciences than life is a member of the body; in like manner it is no more separable from the sciences than life from vital organs.

Philosophers, then, may not be poets, and cannot be seers. Ideas are indeed their sole province, but only such ideas as deal straight with facts. There is a famous saying of Fichte's—"Tell me of what sort a man is, and I will tell you what philosophy he will choose". Such language would be ridiculous applied to science. Fancy saying that the kind of geology—I will not say geometry—that a man chooses depends on the sort of man he is. Fichte's words are full of truth and have deep and important practical bearings, but what they refer to is not scientific philosophy. No, the philosophy which, as I think, has most promise about it now is one that is content to submit to limits in return for stability. There are many alternative

theories concerning matter, mind, the past, the future—in short, concerning the universe generally—between which at present our existing knowledge does not enable us to decide. Such are of the nature of hypotheses, and, pending some critical settlement, cannot be accounted actual constituents of philosophy. Take, for example, the alternatives of Monism and Monadism : the one offers us unity by way of substance, the other offers us unity by way of organisation. Subjective preferences may incline A to the one and B to the other ; but anything like a decision, which shall command assent, whether or no, is out of the question. If it were not, we should not have such continual vacillation between the two, even in our own time. Scientific philosophy has to remain in suspense here much as I imagine scientific physics has to remain in suspense concerning the question whether matter is to be regarded as homogeneous and continuous or heterogeneous and discontinuous.

But some may here object that this is Positivism and not Philosophy. Are we to believe, it may be asked, that the settlement of the ultimate questions of philosophy depends on the ascertainment of fresh facts : is philosophy to depend on measurement as well as science ? Not at all ; the business of philosophy is with ideas,—that everyone must allow. To be sure, the accumulation of fresh empirical particulars does entail from time to time the emergence of new ideas of philosophic import : take the so-called *metageometry*, or the theory of natural selection, as instances. Still, what I especially would urge is, that we have not yet sufficiently cleared up and connected the ideas we have ; and that, till this is done, such ultimate questions as that between monadism and monism have to wait. What philosophy seems to want—as I suggested earlier—is *axiomata media*, middle principles ; and it is because the supply of this want is at length widely recognised as our immediate business that I venture to think philosophy is still strong, though no longer startling.

But, now, what of the future ? Is philosophy to remain for ever, or not ? Who can tell ? In the earlier days of our race, when habits of thought at once geocentric and anthropocentric had never been, as now, so rudely disturbed, an answer would have been forthcoming confidently enough. But it is one thing to believe that the world is reasonable, and quite another to expect oneself to see its reasonableness. The first is an implicit postulate of all philosophical inquiry—nay, of all science whatever. But even if the world be thoroughly intelligible, it may be that the human race can never understand it. Our intellects may be for ever too finite

and too fallible, even if we recognise the limitation to the phenomenal on which Kant insisted. Or it may, indeed, very well be the case that with such limitation a satisfactory *rationalité* of the universe is essentially a contradiction. And if so, what then? Might it not happen that the human mind will at length cease to ask questions which have baffled it so long? A complete adjustment to environment and conditions would, in fact, seem to involve the eventual atrophy and disappearance of a propensity that has never been satisfied. Something of this sort is the opinion of thinkers of the stamp of Comte and Spencer.

Against this death of philosophy from inanition, we should, of course, urge—as I have just now been attempting—that philosophy *has* progressed; and, further, that if the sciences advance indefinitely, there will always be work for philosophers to do. But to this last remark there is a possible rejoinder that deserves some consideration. The indefinite advance of science may be, so to say, asymptotic: though it should never actually come to a standstill, it may yet, as regards those first-rate generalisations that open up new vistas for philosophy, reach what will be practically a stationary state. Reverting to a simile I used just now: if the science-finger of the clock of knowledge comes almost to rest, must not the philosophy-finger do so much more? And yet it does not follow, for several reasons; one of which will bring more directly before us another side of philosophy, so far only incidentally mentioned.

It does not follow, we may first observe, because, even if the number or extent of our scientific principles is limited, there is still an opening for continuous advance in the co-ordination and rationalisation of those principles. A man is inferior in size to a whale, though really its superior in organisation. It is this peculiar *quality* of knowledge as a unified whole, largely (though not entirely) distinct from quantity, which is, at least, one special concern of philosophy. The same material may have very different forms: an ounce of protoplasm, organised as a jelly-fish, and passively drifting with the tide, though it be alive, is a very different form of life from the lark, soaring and “singing in the blinding sky”. Still, we must admit that the quality I have attempted to describe is not wholly independent of quantity. Looked at as a mere question of possible combinations, it is clear that, with a finite number of terms, there is but a limited number of possibilities, and the best of these might be reached in time. Then we should have the final and triumphant philosophy: the last and best surviving its inferior com-

peers—surviving them, but embodying in itself all the partial truths they contained; the paragon of philosophies, as man is commonly accounted the paragon of animals, exhibiting in himself the essential excellence of all animated nature. At first, the thought of *the* philosophy thus attained at length is a grateful one; but it is not so for long. As G. H. Lewes has somewhere said, “Mankind alternately seeks and shuns finality”. And it is plain that the conception of a partial experience of the whole vast sum of things, however completely that experience is classified and transmuted into philosophy, is unsatisfactory, if not—as I just now hinted—contradictory. Either *the* philosophy must be co-extensive with being, or knowledge is not to be the prime source of its sufficiency. It must depend for its perfection on something besides theory; and, as we all know, philosophy does also take account of the questions: What ought I to do? and What may I hope for?

Now it is, more especially, this inclusion of the practical and religious elements that forbids us to think that philosophy (if it does not disappear altogether, as the Positivists teach) must assume a final form, supposing the complement of scientific laws humanly ascertainable is ever made up. It is often alleged, as a grievous shortcoming of Locke, that he is content to say our knowledge is sufficient for our practical needs. For my part, I venture to think that his fault lay not so much in the principle he here assumed, *viz.*, that knowledge is subordinate to practice: it lay rather in his ignoring the fact that our knowledge is, after all, *not* sufficient for our practical needs. The earthquake of Lisbon, the cholera bacillus, the dissipation of energy, are all strictly and emphatically cases of natural law: they suggest no theoretical difficulties as such. A theoretical philosophy, which justified pessimism—so far as we could regard it abstractly as theory—might satisfy the claims of knowledge as fully as one that justified optimism. We cannot insist on omniscience as essential to a perfect philosophy, but it is essential that such a philosophy should satisfy our moral and religious nature. We may even go further, and say that, were our moral reason satisfied, we could acquiesce in a finite knowledge, which would not satisfy our merely intellectual nature, abstractly considered. This, by itself, knows no measure: it is only in ethics that we voluntarily impose a mean.

When we try to take stock of the world of life, and observe the relation between experience and action, we see at every stage that action is in advance of experience: all things that live seem to learn by doing. A spirit of hopeful

to describe
a question
from Fichte
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adventure appears to possess everything: I might say a spirit of faith. The whole story of evolution is typified in Abraham, the father of the faithful, who "went out, not knowing whither he went". Lungs were not first acquired by water-creatures who then proceeded to live on land: birds were not reptiles that first got wings and then began to fly. The function leads to the structure rather than the structure to the function. The world is full of efforts justified only by the results. There was nothing, we will say, in past experience to justify the first attempts at living on land or moving through the air; *also there was nothing absolutely to forbid it*. The attempt was made, and practice brought perfection. With a new sphere of life came new experiences and fresh enterprises. Say what we will, the practical man *will* reason back from consequences, and not merely forwards from premisses.

If we cannot have omniscience then, what we want is a philosophy that shall justify faith—justify it in the only way in which it can be justified by giving it room. So far, at least, one must agree with Kant in the famous passage in the Preface to his first *Critique*, ending with the words: "I must remove *knowledge* in order to get room for *faith*". But, as I have attempted briefly to suggest, practice may enlarge our theoretical horizon; and this in a twofold way: it may lead into new worlds, and secure new powers. Knowledge that we could never attain, remaining what we are, may be attainable in consequence of higher powers and a higher life, which we may morally achieve. All seems to turn then upon whether our existing knowledge, with such theoretical philosophy as it makes possible, leaves this room for faith, and so for growth.

Assuming this room left, two opposite speculative hypotheses present themselves, which I must be content to designate as the religious and the non-religious. Neither, from the nature of the case, can logically refute and silence the other. It is here, by the way, that those words of Fichte I referred to just now are in point. The future of philosophy depends on the issue between these opposite hypotheses; and what I would suggest is that that issue will in turn depend on the practical results to which the two lead. It will be a case of the survival of the fittest. Mankind seems bent on making the experiment perhaps on a great scale. In ignorance of the future of the race, we cannot, on theoretic grounds, forecast the future of philosophy.

IV.—DISCUSSION.

DR. H. MÜNSTERBERG ON APPERCEPTION.

By the EDITOR.

Is the psychological function to which Prof. Wundt would appropriate the hitherto unsettled name of Apperception radically distinct from Association? This is the question to which Dr. H. Münsterberg more particularly addresses himself in the first part of that remarkable series of *Contributions to Experimental Psychology* which (as noted in MIND, Nos. 56, 57) he has begun to publish.¹ The question is not at all new, being in fact as old as psychology itself; but it has acquired a new prominence of late, in this country as well as in Germany. It has been urged upon us here, in the home of Associationism, that without positing a function of attention, subjective activity, activity of consciousness, will (or what not else, so long as the essential import be *activity*), there can be no scientific understanding of mind,—any more than it has been found possible in common life to speak of mental experience without words of active meaning. The special interest attaching to Wundt's similar declaration in Germany arises from the experimental grounds on which he seeks to base it, or—what comes practically to the same thing—from the psychophysical attitude which he desires always to maintain in psychological inquiry. For, if Wundt asserts an apperceptive activity beyond mere associative process, it is not that he does not labour to interpret the one as well as the other in physiological terms. In spite of various expressions which have led others (like Prof. Bain in MIND xii. 174) besides Münsterberg to doubt whether he thinks it of universal application, it is not really to be supposed that the prime champion of the psychophysical method in this generation is not as much concerned as any of his critics to obtain by means of it the necessary basis for strict experimental investigation over the whole mental field. Now when assertions are based on experiment there is the signal advantage that by experiment they can be decisively tested. This, then, is the task which, in regard to Wundt's doctrine, by preference over any other assertion of an efficient activity of consciousness, Münsterberg has undertaken in the first of his

¹ *Beiträge zur experimentellen Psychologie.* Von HUGO MÜNSTERBERG, Dr. phil. et. med., Privatdocent der Philosophie an der Universität Freiburg. Heft 1. Freib. i. B.: J. C. B. Mohr (Paul Siebeck), 1899. Pp. xii. 188.

published researches, bearing the special title of "Voluntary and Involuntary Combination of Ideas".

This memoir, like others that have so far followed it in the series (see below, p. 297), has the noteworthy feature of not putting forward any elaborate tabulation of numerical results, but of presenting these in the most highly condensed form consistent with intelligibility and serviceableness for inference. A deft and untiring experimenter, it is yet about the reasoned interpretation of his results that Münsterberg is chiefly concerned. Not only, therefore, does he include with all his researches (in their published form) a careful review of previous work done on the subject of each, and develop at length the conclusions to be drawn from his own experiments, but he places in the front of his *Beiträge* an argumentative statement of the aim and method of his whole inquiry. To those who may have come to think that the proof of recent advance in psychology is to be found in the new fashion of severe numerical presentation, Münsterberg's wealth of argument, often polemical, may seem to indicate a falling-back into earlier unscientific habit; but, surely, it is not so. There is not yet such universal agreement in matters of psychological principle that all that remains for the scientific inquirer is to sink himself in special questions and heap up experimental values in bald tabular form. Questions of general principle are still among those that most need consensual determination; and if this is to come, as it can now only come, by way of rigid experiment, no prior or sequent discussion that helps to make the experimental test more precise and telling is anything but in place. Apart from a certain disposition to range somewhat widely in argument and perhaps some superfluous repetition,—which it would be well to repress and avoid as far as possible in the interest of an enterprise that has to make its way with readers but is now (after its third part) clearly not going to fail through shortcoming of its author,—it may fairly be said of Münsterberg's experimental work that it has peculiar value just from being so pointedly prepared by general consideration and driven so completely home.

Coming now to the direct aim and purport of his carefully planned scheme of research, it certainly cannot be charged against Münsterberg, however it be with others, that he does not constantly bear in mind the necessity of making no psychological assertion that has not its definite physiological counterpart. While his investigations are declared to be psychological—that is to say, neither physiological on the one hand nor metaphysical (philosophical) on the other—they are yet psychological in a sense that keeps the physiological reference ever in view. Not that he denies the possibility or legitimacy of a purely subjective psychology, working with its own appropriate conceptions and hypotheses. This he does as little as he fails to see, from the philosophical point of view, that physiological facts,

like all other facts of objective science, can have ultimate expression only in terms of conscious (which is properly subjective) experience. But within the range of phenomenal science, where facts of nerve-physiology stand in obvious relation with facts of subjective psychology, he is most of all impressed by the circumstance that the one class—objective as they are—lend themselves to a definiteness and a continuity of representation unattainable with the other. It is, then, psychophysical consideration which he aims at carrying consistently through, in the interest of a scientific understanding of mind. And the prime question, of course, is how the facts of (subjective) consciousness are to be conceived, for this to become possible.

To this question he replies with all due explicitness in his introductory sections (pp. 1-63) on "Consciousness and Brain": not for the first time, indeed, for he had already faced the question in a previous critical essay (*Die Willenshandlung*, see MIND xiii. 436), where he sought to work out a psychophysical theory of Will in all its manifestations, low or high. The difficulty is where conscious experience seems to be of a sort that can only be phrased (subjectively) in terms of action. It is not always such; for there is now what may be called a general allowance, that muscular reaction innervated from the brain under stimulus from afferent nerve is an adequate physiological expression of the simpler kind of psychological experience covered by the name Sense. Such mental aggregates, too, as are plainly of associative origin are hardly denied to be representable by definite brain-configurations,—whatever difference of opinion may remain as to the exact (subjective) analysis of Association. The difficulty, no doubt, is already there, or still earlier at the stage of Sense, in as far as either of these kinds of experience may be held, after all, to import some degree of conscious activity; but it becomes most truly marked where Volition for personal ends, or Thought as subjective reaction upon the multiplicity of experience that passively accrues, is in question. Here it is that Wundt finds it necessary to oppose to anything that can be called Association a function of Apperception,—which he leaves in general with purely subjective expression, though at times seeking to connect it in a more or less halting way with process of the frontal brain-lobe. Münsterberg, on the other hand, makes it his express care to see whether the phrasing in terms of activity of consciousness, which so ill bears physiological translation, is as indispensable subjectively as it is not denied to be subjectively admissible. By way of analytic inquiry, directed especially upon that notion of conscious Ego or subject to which is ascribed the power of striking actively into the stream of mental occurrence, he claims that not less admissible is another manner of psychological statement for which the corresponding physiological expression is not so far to seek. The problem, in fact, as he urges, is to interpret all that is called

activity or change of consciousness as change of conscious *content*. So interpreted, there need be no more difficulty (beyond greater complexity of statement) in finding the physiological formula of thought or volition than of bare memory or sense. But to Münsterberg it is at the same time clear that, in thus transposing the psychological theme for consistency of scientific understanding, the limit of possible explanation should be well observed. The fact of consciousness itself, with all that it directly implies,—for this, he holds, there is no meaning in seeking a physiological expression. In other words, it is the empirical Ego of psychology—not the pure Ego of philosophical consideration—whose doings it is possible to interpret in terms of subjective “content,” and thus render translatable into the other language employed by psychophysical science. There is the more need to note this point which Münsterberg so explicitly makes, because Wundt, if prone to bring consciousness as an unknown quantity into psychological explanation, has yet committed himself (like others in these days) to the general position that consciousness has its physical expression in terms of the collective functioning of the brain (or nervous system). Between the two investigators, it may seem a case where the adage holds true that the half is more than the whole. Consciousness with its fundamental activities of discrimination and assimilation (or however they are expressed) may very well be taken as simple assumption, not needing or admitting of any other kind of expression,—provided that none of the specific questions of our mental life with which the psychologist has to deal, remain withdrawn from the kind of scientific determination that has been found so effective with some.

For, now, the peculiar importance of Münsterberg’s work lies in the kind of questions which he is able, from his point of view, to subject to experimental treatment. The point of view has often been taken before, if never, perhaps, with such careful discernment of the issues involved: what no one previously has done is to make so good a beginning of turning it to scientific account in detail. The question being this—whether there is anything in so-called apperceptive activity that takes it outside the sphere of associative process (assumed to be psychophysically intelligible), Münsterberg seeks to approach its determination by two different lines of experiment. The first is directed to seeing whether, in circumstances progressively more complex than in a certain simple case of reaction where, according to Wundt, apperceptive activity of consciousness must already be supposed at work, there is not evidence that all that goes forward is unconsciously performed, in a manner that can only be physically represented. The other is an attempt to bring acts of judgment or choice (as all would call them) so into relation with cases (as commonly described) of mere association, that whatever psychophysical account may be given of these must be held equally applicable to those.

I. The first inquiry makes use of a distinction established experimentally by L. Lange, one of Wundt's pupils, and interpreted by Wundt himself in accordance with his apperceptive theory. The time of reaction to sensible impression is found to vary according as the reagent's attention is directed to the impression to be received or to the movement to be put forth. It is considerably longer in the former case ; and this being interpreted to involve a specific act of conscious apperception (of the impression) absent in the other case—where the reaction is supposed to follow with the directness (as it were) of a reflex movement—the 'sense-reaction' is spoken of as 'complete,' the 'motor reaction' as 'shortened'. Now Münsterberg bethought him of seeing how the relation of the two kinds of reaction might turn out in circumstances where the shortening could not be supposed due to the effect of habit—rendering the act (secondarily) automatic. For this he decided to work with the five fingers of the right hand, and get a reagent (Dr. *Thumb*, as it happened) to respond with movement of particular finger to particular stimulus, and eventually to particular *kinds* of stimulus that gave progressively more and more scope for what might seem to be conscious discrimination and identification. The apparatus employed did not in principle differ from that used in the simple reaction-time experiments of Wundt's laboratory, and all this part of the case may here be passed over with the remark that nothing in the way of care or precaution seems wanting to the work. Sound uttered by Münsterberg himself was the stimulus chosen, and the time was measured in thousandths of a second (σ) between his utterance, synchronising with pressure of a knob, and the reagent's movement of response, consisting in the raising of particular finger from a keyboard on which the five were at rest. The first point to ascertain was whether all the fingers could be raised upon stimulus with equal readiness, and this, after some practice, was found to be the case. Then the experiment went forward in a way and to a result that may be summarily described as follows.

The reagent's time (1) with any finger being found, upon average of many trials to be 160σ , 120σ , respectively, for 'complete' and 'shortened' reaction to uniform stimulus, he was next tried with different stimulus for each finger. Thus (2) the thumb was to be raised at sound *one*, and so on to last finger at sound *five* ; here after due trial, of course in pell-mell order of utterance, the figures became 383, 289. Again, (3) the words appropriated to the different fingers in order being *lupus*, *lupi*, *lupo*, *lupum*, *lupe*, the figures obtained with this quite artificial association were 465, 355. So far, the object was only to give practice in definiteness of response, the possible effect of habit not being eliminated. But now (4) there were at one and the same time allotted to the fingers in order five cases of the three pronouns, *ich*, *meiner*, *mir*, *nich*, *wir* ; *du*, *deiner*, *dir*, *dich*, *ihr* ;

der, des, dem, den, die, and a particular finger had to be raised to any one of three different sounds uttered irregularly from among fifteen in all. Here, where there no longer could be question of fixed association but there had to be constantly renewed discrimination, the time for the two kinds of reaction rose to 688, 430. And from this point emerged, under progressively more difficult conditions, a very remarkable result. The thumb, forefinger, &c., were to be raised respectively upon random utterance, (5) of any *noun, adjective, pronoun, number, verb*; (6) of the name of any *city, river, animal, plant, (chemical) element*; (7) of the name of any *poet, musician, naturalist, philosopher, statesman (or general)*. Here, in accordance with the increasing difficulty of identification, the time for 'complete' reaction rose from the 688 of the previous case to 712, 893, 1122; but the time of 'shortened' reaction remained practically constant, being 432, 432, 437 by the side of the 430 of case (4). There was also the notable circumstance that only from case (4) onwards did errors—of raising the wrong finger (generally as between fourth and fifth)—occur, and this always in connexion with the 'shortened,' never with the 'complete,' reaction. The errors in the different cases were respectively 10, 30, 12, 25 per cent.; where the excess in case (5) admits of sufficient explanation from the difficulty of finding words (always of one syllable) that, as sounded, might not be referred to more than one head, *e.g.*, the pronoun *sie* being in utterance indistinguishable from the imperative *sieh*.

These figures, which are startling enough, have an obvious bearing on the question whether the exercise of apperceptive function (however this may or may not be physically conditioned) makes the whole difference that has been alleged between the two kinds of reaction; also upon the question whether work of the consciously active (or actively conscious) sort is as necessary as has been supposed for the attainment of certain intellectual results. If, without first consciously attending to a particular sound (*i.e.*, discriminating and identifying it), and without then consciously deciding to put forth one particular movement rather than any of several others in response to it, the movement is, in general, found to be rightly put forth apart from such consciousness, provided only the system (call it mental or nervous) is by pre-arrangement poised in more or less determinate fashion,—why, then, the part commonly reserved for direct activity of consciousness must, surely, be allowed to be one that is by no means indispensable. But, before remarking further upon the interpretation which Münsterberg would put upon the results of his first series of experiments, let us in like manner have summary view of what he attains with his second.

II. The second research has a relation to previous experiments on Association-time, especially those carried out at Leipzig with so much care by Prof. Cattell (see *MIND*, vol. xi. *passim*), but is

guided by a different principle, and seeks to bring experiment *directly* to bear upon mental processes of the higher or more recondite sort. Hitherto it is indirectly, by way of calculation, bare reaction-time first discounted, that it has been sought to get a 'recognition-time,' a 'will-time,' and with these also an 'association-time'. For Münsterberg, on the other hand, the main question just is, whether the mental processes here distinguished do in any case so join on in serial order, the one ending before another begins, as to be thus separable by calculation. And he would solve it by working up experimentally from relatively simple cases of intellection to others which plainly involve judgment and will. The method of experiment was to require of two reagents, M. and R. (Drs. Mayer and Rieger), to utter alternately, ten at a time, single words in response to questions of different degrees of complexity conveyed to them by Münsterberg's utterance, in such way as that the time could be accurately measured between question and response,—by having the two utterances combined with simultaneous finger-movements that respectively closed and opened the galvanic current of the registering apparatus. In the graduated series of questions put to the reagents, the earlier ones involved nothing more than request for an associated name; but, as Münsterberg urges, this cannot be sought for under experimental conditions without implying some kind of judgment in the response, since even in the case of freest association it must really be an associate of one kind or other, and not any name whatever. Thus it is possible, for purposes of comparison, to bring what are called involuntary associations effectually into line with such judgments as obviously import choice and volition.

Beginning was made (1) with simple repetition of the call-word, yielding a mean time for M. of 408 σ , for R. of 362 σ . ('Mean variation' is added throughout, in proof of the care taken in averaging the thirty or forty trials made with each reagent at every stage of the experiment, but may here be left aside.) After this preliminary, the experiment went forward in a way that may perhaps be more clearly conveyed by giving at each stage some examples of the type of questions put and answered, rather than by any general designation of the different types:—

(2) Associate of 'Gold'?—'Silver'. 'Strength'?—'Force'. 'Sing'?—'Dance'. M. 845, R. 948.

(3) 'Greek poet'?—'Homer'. 'Drama of Goethe'?—'Goetz'. 'Prussian town'?—'Berlin'. M. 970, R. 1103.

(4) 'Three times four'?—'Twelve'. 'In what season of the year, June'?—'Summer'. 'Teacher of Plato'?—'Socrates'. M. 808, R. 889.

(5) 'Which more important, Virgil or Ovid'?—'Virgil'. 'Which do you like better, wine or beer'?—'Beer'. 'Which seems harder to you, physics or chemistry'?—'Chemistry'. M. 906, R. 1079.

(6) 'Among apples, pears, cherries, &c. (nine others named), which do you like better, grapes or cherries'?—'Cherries'. 'Among ten trees named, which more picturesque, lime or oak'?—'Oak'. 'Among ten colours named, which goes better with blue, yellow or green'?—'Yellow'. M. 694, R. 659.

(7) 'Most important German river'?—'Rhine'. 'Finest of Goethe's dramas'?—'Faust'. 'Your favourite French poet'?—'Corneille'. M. 962, R. 1137.

(8) 'Which lies more to the west, Berlin or the most important German river'?—'Rhine'. 'Which letter comes later in alphabet, L or the initial of the most beautiful tree'?—'T' (*Tanne*). M. 1844, R. 1866.

(9) 'Which lies more to the west, Berlin or the river on which stands Cologne'?—'Rhine'. 'Which is less, 15 or 20 *minus* 8'?—'12'. 'Which letter comes earlier in alphabet, P or initial of our emperor'?—'F' (Frederick). M. 1291, R. 1337.

(10) 'Among twelve bodily organs named, which larger, hand or what one smells with'?—'H'. 'Among twelve colours named, which brighter, blue or colour of sulphur'?—'Yellow'. 'Among twelve poets named, which lived later, Lessing or Byron'?—'Byron'. M. 1153, R. 1145.

Finally, (11) 'Which more impressive, the finest drama of Shakespeare or finest opera of Wagner'?—'Lohengrin'. 'Which more picturesque, the most beautiful fruit or the most beautiful flower'?—'Rose'. 'Which of greater importance to man, the most important application of electricity or the most important use of gunpowder'?—'Telegraph'. M. 2197, R. 2847. But here the 'mean variation' was so exceptionally large that the limits of intellectual complication with which direct experiment can effectively cope appeared to be overpassed; and, accordingly, the result was discounted.

Now, of course, the value of these results, though they seem to have been obtained with all imaginable care, must not be overrated. Münsterberg himself is the first to see what weakness there is in any of them; as, *e.g.*, especially in all those of them—(5), (6), (7), (8)—that involve what he calls a "subjective judgment of decision". Whether the subjective estimate was asked for between two alternatives only or within an indefinite range, the experimental decision was (as it had to be) made with an *aplomb* far enough removed from the hesitation of ordinary life;—as was shown, for one thing, by the disposition the reagent would immediately betray to go back upon the particular preference he had so confidently expressed. Still it is evident that, from (2) onwards, the more salient kinds of intellectual activity—these, too, carried from (7), to some considerable degree of complication—are in a way fairly represented. And in this view, not a little remarkable the results are. A free association, as in (2)—which Münsterberg here calls "unrestricted judgment of relation"—has always been readily understood

to take shorter time than such a restricted association (or judgment) as is involved in (3); while this again may take somewhat longer time than the singularised or exclusive determination of (4). But, when the subjective appreciation involved in (5) took by itself a time which approximated to that of (3), it was certainly not to be expected that it could be superimposed, as in (7), upon the work of (3) within a time, for the whole complex process, which is practically the same as that of (3) by itself. Again, while in (8) the addition of an act of exclusive choice to the work of (7) brings the time up to a figure which, for M., is almost double, it is curious to see how comparatively little the same kind of addition to (4) increases the time of this by itself. Once more, the shortening effect wrought upon (5) and (9) by such a foregone enumeration of relevant particulars as was employed in (6) and (10) is remarkable enough. Other points of interest might be noted in the figures, as, *e.g.*, between the two reagents, how R., although (after the first simple reaction) his times are otherwise pretty uniformly longer than M.'s, responds with exceptional swiftness under the peculiar conditions of (6) and (10). Most important, however, is the main outcome of the whole series of experiments, and this is—that the actual work of intellect is done in a way which cannot be represented by any summation of such elements or factors of conscious experience as subjective analysis may discern in these or similar cases of mental complication. If, wherever an 'apperceptive act' can be noted in any of the foregoing associations or judgments, it must be supposed to engross consciousness for the time being—and this cannot but be supposed, whether or not the 'act' may admit of satisfactory physiological expression—then the time-values in the great majority of the cases ought to have turned out larger, and to have been otherwise very different (in comparison with one another) from what they were found to be.

Taken together, the two researches in their different way certainly point to one conclusion—that there is no such difference between so-called voluntary and involuntary intellection as Wundt's apperception-theory (or any other like it) would make out. The effective mental work which gets itself somehow performed in these experiments of Münsterberg may be set down, in the language of subjective psychology, to activity of consciousness; but this activity conforms to no law that can in any way be traced,—or, in other words, no scientific account of it can be given. On the other hand, the experimental results do not seem to withdraw themselves from consistent psychophysical interpretation. In II., the salient feature is the comparative shortening of time taken up by the more complicated mental processes. Where there is any marked increase of time for the complex over the relatively simple, this is yet out of all proportion less than the degree of complication (subjectively viewed) would seem to require. In I., the salient

feature is the practically constant time within which intellectual acts (for they are, to all intents and purposes, intellectual) of varying complexity are effected, so soon as the performance is allowed to take place in the way called unconscious. Here, unconscious performance means that the motor result finally obtained is effected in a way that is physiologically imaginable (though in detail it cannot be actually traced). That is to say, there is understood to be a physically continuous process all the way from where stimulus is received till where, by more or less circuitous cerebral route, the terminal station of overt impulse is reached. But if the time between stimulus and reaction remains (practically) constant though the cerebral work varies as much as it must do between cases (4) and (7) of Münsterberg's first research, there must here be some overlapping of stages in the whole brain-process, such as with physical process it is not unimaginable there may be. Now the very point, it will be remembered, of the first series of experiments was to get work done which, though 'unconsciously' performed, had all the character of that kind of work which, before habit is formed through practice, consciousness alone is supposed able to effect. Where, then, as in the second research, it is a question of understanding how conscious process may go forward at a rate much swifter than could be if all the stages of conscious activity apparently involved were in serial order gone regularly through,—it lies to hand to suppose that the real causal chain (eventuating in the final movement) is a physical one of nerve-process, which, according to circumstances, may be more or less cut short.

Such is a general—very general—indication of the meaning put by Münsterberg on his experiments. The English reader will perhaps call to mind the passage in Mill's *Examination of Hamilton* where, over against Hamilton's hypothesis of 'unconscious mental modification,' and Stewart's hypothesis of fleeting conscious modification straightway forgotten, the idea is thrown out that lapsed elements in trains of association that continue effective may correspond to the opening of physical short cuts through the brain; the same mental result being thus attained directly that would otherwise be reached more circuitously with full consciousness. In Mill, the supposition, where it is made, has a certain forced effect, because in general he shows himself so little anxious to rely upon psychophysical consideration or carry it through. It is, accordingly, rather in the writings of so earnest a physiological psychologist as Prof. Bain; or of so fervent a depreciator of consciousness and all its works by the side of brain-process as Dr. Maudsley; or, again, of a thinker so firmly convinced as Mr. Shadworth Hodgson that, after *philosophical* analysis of experience, there is nothing left for psychology to do but to find coherent physiological expression for the facts of subjective consciousness,—it is in the

writings of these that the nearest English approaches must be sought to the position taken up by Münsterberg. But, as has been already said or implied, what distinguishes him from the writers named, or from any others who in this country have conceived of the physical series of nervous events as bearing the whole causal strain ('causal' understood phenomenally) of the chequered play of mental life, is just the experimental art which he brings to bear upon special questions of psychology; so that the position no longer remains open to the charge of being a barren generality incapable of proof or disproof. Or, rather, this is his first point of distinction; for the present attempt to draw attention to his work should not break off without at least mention of one other notable feature in it.

It was noted above, under II., how according to Münsterberg the demand, under any kind of experimental conditions, for even the least restricted association involved already some act of judgment on the part of the reagent. But, if in this way he made good the continuity of his experimental tests from simple up to complex judgments, it is not thus that he leaves the question (as between Association and Apperception) at the final stage of psychophysical interpretation. If his general formula is to stand—that all activity or change of consciousness must admit of being represented as change of conscious content—the explicit judging (or choosing) at one end of his experimental scale should, equally with the implicit judging at the other, bear to be expressed in terms of Association. He has, therefore, to grapple at length (pp. 123-41) with the psychological question of the exact nature of the associative process and of Thought in relation to it. It is the question which English Associationists have tried always, more or less directly, to face,—never more directly (upon a line of his own) than in the article on "Association and Thought" by Mr. F. H. Bradley in *MIND* xii. 354. Münsterberg's treatment is of a range and character to which no justice can be done on the present occasion, but it is specially commended to the notice of readers—for more reasons than one. As a piece of subjective analysis, it shows, in comparison with most of the English efforts, a superior grasp of the precise issues in question; and it is worked out—as the best English treatment has not always been, and sometimes has not been at all—with an eye kept steadily fixed on the physiological aspect of the case. One point only may now be noted, in this (latter) view. Münsterberg takes side with those who reduce all association to the one form of 'Contiguity,' but finds himself also obliged to go further, and limit this to the single case of 'Coexistence-in-time'. It is not clear to me that he thereby overcomes the very serious difficulty there is in getting a satisfactory physiological expression for 'Contiguous Association' (as very serious difficulty there is, in spite of what one could write, with the brave confidence of youth, in the *Encyc. Brit.*, 9th ed., art. "Association"). But the exact *crux*, as it has now long

seemed to me, of the matter I have not elsewhere seen so clearly expressed or apprehended as by Münsterberg from p. 130.

These remarks must for the present suffice. Dr. Münsterberg is fulfilling his promise of serial publication so punctually that there will be occasion enough to return upon his work. It is a work of genuine research that is all the more remarkable from being done (as I have read somewhere) without any of the official aids and facilities that belong to a higher academic status than he has yet attained. Among the psychological questions which he has most made his own—in connexion with the half-dozen or more researches he has so far published, as well as in his earlier essay on the *Act of Will*—is that deep-going and far-reaching one of 'Muscular Sense'. The decided position, after more than commonly circumspect consideration, which he takes up on this critical subject, will, it is hoped, not be passed over the next time his work is had under review.

PROF. BURDON SANDERSON ON PHYSIOLOGICAL METHOD.

By W. LESLIE MACKENZIE.

Prof. Burdon Sanderson's Address to the Biological Section at the last meeting of the British Association has more than a sectional interest. It is an utterance, *ex cathedra*, by one of the chief physiologists of the time—an encyclical, as it were, of physiological science, gathering up the main drifts of speculation, reviewing and resetting fundamental problems, fixing the limits of current methods and indicating in a masterly way the true direction of scientific physiology in the near future. From readers of MIND, too, the address demands consideration; for it is a serious contribution to method, to the logic of physiology; it seeks after a statement of the fundamental processes of life, and opens up new ranges of suggestion to the psychologist. The chief positions of the address I propose to arrange and consider under the following heads: principles, methods, fundamental problems and possible psychological applications.

Principles.—The principle that marks off Physiology as a science is that "every appreciable difference of structure corresponds to a difference of function; and, conversely, that each endowment of a living organism must be explained, if explained at all, as springing from its structure". This is the chief axiom of the science. Accordingly the work of the physiologist is twofold: first, to determine "the chemical and physical endowments of living matter in general, and of each of the varieties of living matter which constitute the animal and plant organism in particular"; secondly, "to determine how these processes are localised so as to constitute the special function of each structure,

and the relation between structure and process in each case". But in the application of the fundamental principle little real progress was possible till the notion of "vitalism" had yielded before the physical methods of Young, Mayer, Bernard, Helmholtz, du Bois-Reymond, Ludwig and others. At last, however, the scientific method is established: the word "vital," as distinctive of physiological processes, may be abandoned altogether, and the physiologist, unencumbered by extraneous difficulties, proceeds to his work of correlating structure with function.

Methods.—As for method, physiology has on the whole proceeded from structure to function, which is well so long as the question is of organs anatomically or histologically distinguishable. But, "inasmuch as function is more complicated than structure, the result of proceeding, as physiology normally does, from structure to function must inevitably be to bring us face to face with functional differences which have no structural differences to explain them". Thus in the eye—a never-failing source of interest to physiologist and psychologist alike—the correlation of optical mechanism with the formation of images and of retinal elements with the number of discernible objects, presents little difficulty to the physiologist; "but the method of correlation fails him from the moment that he considers that each object point in the field of vision is coloured, and that he is able to discriminate not merely the number and the relations of all the object points to each other, but the colour of each separately. He then sees at once that each cone must possess a plurality of endowments for which its structure affords no explanation. In other words, in the minute structure of the human retina we have a mechanism which would completely explain the picture of which I am conscious were the objects composing it possessed of one objective quality only, being colourless, but it leaves us without explanation of the differentiation of colour." Structure, it is important to note, means here microscopic structure as yet known to us—a limitation of some consequence. Thus also gland-cells—for example, liver-cells—may each perform the many functions of the whole organ; and here, again, "all that our knowledge of minute structure has done for us is to set before us a question which, though elementary, we are quite unable to answer". Function seems here to mean all the activities of the cell. By inference from these examples and many others like them, Prof. Sanderson reaches his first great generalisation—*plurality of function with unity of structure*.

This, once established, compels a change of method; structure is no longer an available guide. Two ways are open: either to fall back on the potentialities of "protoplasm," as if that were explanation; or, "retaining our hold of the fundamental principle of correlation, to take the problem in reverse, *i.e.*, to use analysis of function as a guide to the ultra-microscopical analysis of

structure". We thus proceed from function to structure—not certainly a new method, as witness Haller's discovery of the irritability of muscle, Bichat's physiological distinction between organic and animal functions, Heidenhain's and Langley's functional study of gland-cells, and lastly Gaskell's discovery of the anatomical differences among cerebro-spinal nerves; but a method now for the first time placed on its true scientific footing. The significance of this is that histology, like the coarser anatomy, has, so far as concerns physiology, reached a limit. "It is by different methods of investigation that our better equipped successors must gain insight of those vital processes of which even the ultimate results of microscopical analysis will ever be, as they are now, only the outward and visible sign."

Fundamental Problems.—It is outside the purpose of this paper to summarise in great detail the second part of Prof. Sanderson's address; and, besides, no summary could do justice to the grasp and impressiveness of the original. It is enough here to present the general result. "But now," says Prof. Sanderson, "no one who is awake to the tendencies of thought and work in physiology can fail to have observed that the best minds are directed with more concentration than ever before to those questions which relate to the elementary endowments of living matter, and that if they are still held in the background it is rather because of the extreme difficulty of approaching them than from any want of appreciation of their importance." Life is a state of ceaseless change. This change has two aspects: first, growth, evolution, or the *morphological* aspect, which exhibits the plant and animal world as "the unfolding of a structural plan which was once latent in a form of living material of great apparent simplicity"; second, nutrition, exchange of material, metabolism, or the *physiological* aspect, under which "this apparently simple material is seen to be capable of the discharge of functions of great complexity, and therefore must possess corresponding complexity of mechanism. It is the nature of this invisible mechanism that physiology thirsts to know." Pflüger's researches on the avidity of protoplasm for free oxygen, the hypothetical *micella* of Nägeli, the *tagma* or molecular phalanx of Pfeffer, the muscular *ino-tagma* of Engelmann, vital turgescence in plants, muscular contraction, "this marvellous concomitance of chemical, electrical and mechanical change," these all point towards one general idea, *viz.*, that the "invisible mechanism" consists of two things—a living, stable, acting, catalysing framework or channel, and a non-living, labile, acted-on, interstitial, catalysable content or stream. Further, this mechanism, itself unoxidised and unaltered, "seizes upon oxygen and stores it for its own purposes". As this storage is the sign of restitution, so the production of carbon-dioxide and water is the sign of expenditure, and thus we reach a new characteristic of living process, *viz.*, "that it is a constantly recurring alterna-

tion of opposite and complementary states, that of activity or discharge, that of rest or restitution". It is generally agreed that discharge and restitution (or charge and discharge) are fundamentally opposed; but with Prof. Hering and Dr. Gaskell restitution (charge, assimilation or anabolism) and discharge (dis-assimilation, katabolism) are equally forms of activity requiring each its proper stimulus. Prof. Sanderson suggests a modified formula to meet this, though he regards anabolism and katabolism rather as the interference of two regulating mechanisms than as the antagonism of tendencies in the same mechanism. But, whatever the general formula, this fundamental distinction, which carries with it a proximate definition of life, indicates a possible synthesis of the vast and growing masses of physiological detail, and if, as Prof. Sanderson seems to indicate, we are on the verge of a new "vitalism," it is a provisional and scientific vitalism, ready to be driven farther and farther away as the improvements in method make wider and profounder generalisations possible.

Applications.—The following remarks are offered as a fragmentary expression of difficulty, first, in the exact appreciation of Prof. Sanderson's main principles, and next, in framing possible psychological applications of them.

1. "If plurality of function" is to be an accepted axiom, the notions of structure and function must be reset to a wider meaning. But at once we light on possible ambiguities. Structure no longer means merely microscopic structure; yet, from the natural tendency to correlate functions, however inadequately, with known structures, microscopic structure has become the basis of all the chief doctrines of physiology. How much this tendency has affected the nerve cell one may learn from Lewes's criticism in the *Physical Basis of Mind*. On the other hand, if structure is an invisible mechanism that no histology can reveal, does not *unity* of structure become a pure postulate? Does it not seem as if, having first fixed the limits of the assumed unity, we sought then to correlate the known plurality of function with our assumption? Prof. Sanderson carries us back a step when he demonstrates plurality of function in the ultimate tagmata or molecular systems of muscle. But the question still presses—May we properly regard as unity that which has many functions? The question is perhaps "trifling," but it indicates a real vagueness. By ordinary usage, function is the activity of a definite organ for a definite end; but in the most general form of living matter, function and metabolism mean almost the same thing. Does function, then, include all the activities of living matter—chemical, electrical, mechanical? Is secretion of bile really a function of a liver cell, or only, as Dr. Lauder Brunton seems to indicate, an accident of metabolism? If, then, we must limit function to certain aspects, or certain results of metabolism, on what ground are we to settle real *plurality* of function?

2. The notions of motor and sensory may now be subsumed under the more general notion of constructive and destructive metabolism (Gaskell, *Journal of Physiology*, vol. ix.). It seems hardly legitimate to suppose that motor and sensory processes, though opposed in their results, are merely opposing phases of central nervous activities; probably they are each equally anabolic and katabolic. To them we may add inhibitory processes, which are understood to be anabolic. But anabolism and katabolism of nerve-centres, it is hardly yet possible for the psychologist to use as a guide in re-constructing the physical concomitants of mental phenomena. For physiologists as yet offer no consistent account of the inter-relations of motor, sensory and inhibitory processes. Thus certain sensory stimuli are inhibitory (say) of reflex actions; Dr. Mercier (*Nervous System and the Mind*, p. 79) "by a series of exclusions" finds that inhibition is "maintained by centres which exercise this function concurrently with others"; Dr. Broadbent looks upon inhibition as a normal tension of central system and terminal organs; Dr. Gaskell finds peripheral inhibition of muscle or gland, anabolic, and central inhibition of one centre by another probably means anabolism in the inhibited centre. Others, following Gaskell, use "inhibitory stimulus" to imply that certain afferent stimuli may increase anabolic activity in the centre they pass to (Head, *Journal of Phys.*, vol. x., p. 283). But from the turmoil of physiological speculations there seems to be emerging a richer, fuller and more definite conception of nerve-action. Afferent processes, hitherto vaguely connected with the action of sensory centres, are now divided into sensory proper, the concomitants probably of central katabolism, and inhibitory, the concomitants of central anabolism. So efferent processes are motor or katabolic, and inhibitory or anabolic. Similarly with the interactions of nerve-centres: the supposed inhibitory effect, for example, of the frontal lobes on lower brain centres means anabolism in the centres inhibited. If such a generalisation can be established, obviously the psychologist may push the correlation of mental and physical beyond the mere localising of centres or the numbering of nerve cells and fibres. It would be rash here to do more than indicate one or two possibilities. New acquisitions, sensory and motor, may conceivably coincide with central anabolism; reproduction of these, like complementary after-colours on Hering's hypothesis, with katabolism; the nerve-centres, acting like secondary electric batteries, store under one stimulus what they are ready to give out again under another. Similarly, attention would coincide with a compound process; for, physically, attention, for instance of the senses, means the arrest of distracting motions, the refusal of sensations and at the same time the issue of motor energy in special directions. Voluntary motion and control, emotional arrest of ideas or actions and many other mental occurrences, may have their physical concomitants reduced to terms of anabolism and katabolism.

To take now an example from the senses. What colour is to the mechanism of the eye, *timbre* is to the mechanism of the ear. The analysis of *timbre* into a fundamental vibration and its harmonics, reduces the objective condition to variations and complications of one process—"one objective quality"; and Dr. Stanley Hall's theory of the rods and cones in relation to wave-lengths of light, aims at reducing the "differentiation of colour" to the same fundamental process as the differentiation of number. In neither case, however, do we get beyond the threshold of a solution. The "vital" processes in ear and eye are at least as important as the purely physical conditions. Probably the conflicting theories of colour-vision have arisen from the all-prevailing tendency of physiology to be content with purely physical results. Hering's varieties of "visual-substance" will have analogies in the other senses, and even when, if ever, sensation generally is reduced to appreciation of "one objective quality," there will still remain the correlation of special sense activities with central or peripheral metabolism.

So little developed, however, so little "done into science," are the generalities of psychological physiology, that psychologists (cp. Bain, "Mind and Body," MIND, viii. 402) have found it almost impossible to establish a plausible concomitance even in the number of mental acquisitions and the number of possible nervous embodiments. Those things, Prof. Bain points out, are not the easiest to recall that require the least number of coherences; on the contrary a multitude of contiguous details is a help at once to acquisition and to recollection. Hence even high numerical estimates of cell- and fibre-embodiments become less than adequate to the acquisitions even of an ordinary mind. With the help, however, of Prof. Sanderson's "plurality of function" and an analysis of nerve-matter parallel to his analysis of muscle, we can multiply almost indefinitely the number of available nerve-elements. If "close and open order" of molecular systems in muscle form a basis for different actions of one excitable tissue, it is legitimate to make a similar supposition for nerve cells, another excitable tissue. And if to this we add the possible variations of function according to the variations of stimuli and nutrition, the number of nerve-cells and fibres becomes a secondary matter; we must regard the simplest *visible* structure as "itself made up of an arrangement of units of a far inferior order of minuteness". Such units for muscle Prof. Sanderson has indicated; psychologists and "professed philosophers" would be grateful for a parallel analysis of nerve-cells and fibres.

3. The possibility of speculations like these justifies another remark. Psychology is itself a "reverse method" of physiological analysis, and an admirable instance of such analysis from the psychological side is Dr. Mercier's *Nervous System and the Mind*. In the "invisible mechanism" of the grey matter, the

psychologist requires physical concomitants to match the refinements of his analysis. These mechanisms it is the business of the physiologist to verify; if he fail, his failure counts for nothing against the psychical facts. It may be, as in Dr. Mercier's speculations on the necessary functions of the structureless inter-cellular matrix, that many suppositions are as yet unwarranted by neurological research; but Dr. Ross's criticism of Dr. Mercier's speculation as without "any justification" (*Brain*, Jan., 1889) is hardly legitimate, if Dr. Ross means to limit nerve-function by known structure. Functions of cell or inter-cellular matrix must be limited by the requirements of the case, and Dr. Mercier may fairly reply that the only physiology of nerve-matter that suits the purpose of psychology requires the assigning of certain functions to the matrix, and that the neurologist must provisionally accept the hypothesis or else explain otherwise the facts in hand. At the least, the detailed correlation of physical and mental has not yet reached the stage when verified fact can be everywhere opposed to hypotheses; at the most, it is an opposition of one hypothesis to another.

EXPERIMENTAL CERTAINTY.

By L. T. HOBHOUSE.

The doctrine that all reasoning is from particulars, if not to Mill the centre of his system, has at least been made such by his critics. Certainly this much might be said, that the *raison d'être* of the third book—the central part—of his *Logic* is to lay down criteria by which we may judge when such reasoning is valid. To Mill emphatically *Logic* is a criticism of reasoning. It is not merely an investigation of the general nature of the reasoning process, but is primarily concerned with this question, 'By what test, if any, can we distinguish true reasoning from false?' Now, if we can find such a test, we can then hope to do something with the crude material of observation; if not, there is no scientific statement to be based on any number of observed facts. In this way the two questions of the basis and the test of reasoning hang together, and it is in this relation that we wish to investigate them.

Can we then reason in the strict sense of the word from the 'particular' facts of observation? That is, can we base universal statements upon them? If so, when? Can any general principle be laid down to which all such inferences must conform? These are the questions before us.

Four (or five) canons have been laid down by Mill which claim to supply us with the required test, and hence to assure us that any inference conforming to them may be held truly universal.

I do not propose to discuss all the five in detail. The Methods of Residues and Concomitant Variations really resolve themselves into cases of the Method of Difference. The Method of Agreement is, indeed, based on a different principle, but is confessedly inconclusive when taken by itself. The Joint Method involves the two Methods of Agreement and Difference.¹ We are left, therefore, with the Method of Difference as the real subject of discussion, and we have to ask how far (if at all) a rigid application of this method enables us to base an universal assertion on a particular fact. In the first place, does it enable us? In the second place, if it does, how can it?

It is only fair to note as a preliminary that Mill is perfectly right in his plea that the ordinary scientific experiment is conducted on this method, and that any single successful application of it will give practical certainty. The chemist who 'isolates' a substance, the physiologist who determines a brain-area, and the physicist who measures a constant, one and all base their results on this method, and make that result the basis of fresh applications of the same.

Probably no one would deny that the method bears some resemblance to the ideals of experimenters. But opponents would direct their attack on its claim to give theoretically perfect universal inferences from the facts of observation. Let us see how far such criticism goes.

Two lines of attack have been adopted. The method has been criticised as *impracticable* and as *fallacious*.

I. Of the first criticism, let us acknowledge at once that it contains a great deal of truth. A perfect instance of the method would be symbolised—

$$\begin{array}{ll} BC & ABC \\ ef & def \end{array} \left. \vphantom{\begin{array}{ll} BC & ABC \\ ef & def \end{array}} \right\} \text{whence A is cause of d.}$$

Now this conclusion rests, first, on A being absolutely the only change introduced. If any other change has crept in, our conclusion is baseless. How, then, can we ever be sure that A is the only change introduced? For example, I stimulate (A) a certain brain area of a monkey (BC = the nervous organisation in a quiescent state) and observe a convulsive twitching (d) of the hand (cf = the permanent attributes of the hand). Now how do I know that A was the only change introduced? Possibly the very means I used to stimulate this area may have affected some other spot, and that affection may have been the real cause. And this, in fact, is precisely what a physiologist would have to fear.

But here, I think, the answer of an apologist for the method is

¹ It should be noted that Mr. Venn's statement of this Joint Method (in *Empirical Logic*) is a very clear improvement on Mill's.

clear enough. The very fact, he would say, that the physiologist does, and is compelled to, fear such interference is the proof that our method lays down the *ideal* of proof. More than that it cannot and does not profess to do. All it says is, If you conform absolutely to this ideal you will get certainty, and the nearer you approach to it the nearer to certainty you get. The method, then, is the ideal or type of proof, and it is for the operator to conform to it as nearly as he can.

But here a deeper objection may be raised. However careful our experimenter may be, it might be said, he cannot shut out the great mass of changes going on throughout the universe. To fulfil the requirements of the method he has to take two observations, and this cannot be done at the very same time and place. Let him bring them as near as he possibly can, there have been changes in the interval other than that which he introduces.

To appreciate the force of this argument we must consider, first, that all sorts of unforeseen and unexpected results do come about from disregarded changes in the general environment. Minute changes of temperature, for example, or (as in an interesting instance quoted by Mr. Venn) the mere change in the level of the floor due to the movements of the experimenter, may make all the difference to our experiment. So that the objection is not unpractical. But, further, even if it were, it would still be a good criticism on the claims of the method which we are considering. It points to the real limitations of the method. If, that is, the method claimed to give an universal truth as the result of a single experiment *without any independent knowledge whatever of the nature of the facts observed*, that claim could not stand. Such a claim would suppose that we came to our experiment destitute of all knowledge of nature. Then why should not that position of the fixed stars, for example, with which the introduction of A happened to synchronise, be the real cause of d? The answer to this is double.

The first and obvious answer is, We know that it is not so. But this is pre-supposing previous knowledge; it is deducing from previous experience. Undoubtedly it is. And it should be noticed that Mill recognised this as much as any of his critics. "It is true," he says, "this similarity of circumstances needs not extend to such as are *already known* to be immaterial to the result. And in the case of most phenomena we learn at once, from the commonest experience, that most of the co-existent phenomena of the universe may be either present or absent without affecting the given phenomenon," &c. "Already known," that is, of course, from previous experience.

If this is so, then we cannot get on without deduction. Perhaps not, but that does not destroy the value of the method. Thus, in symbols, the method would now give us—

BCPQRS. . . .
e f m n o p. . . .

ABCPRTU. . . .
d e f m o v w. . . .

By previous experience P Q R S T U . . . immaterial.

Hence A the sole material change.

Hence A the cause of d.

This is just as much an addition to our knowledge. It gives a new universal relation of A to d, an universal not contained in our previous knowledge.

But, now, how was this previous knowledge obtained? If the method is the sole ground of universal truths, and if the employment of it involves universal truths as already known, how are we to make a beginning? This brings us to the second part of our answer.

Let us notice in passing that as an *argumentum ad hominem* against Mill this criticism is nugatory. For Mill consistently admits Simple Enumeration as a valid form of inference, though liable to misuse, and he might very fairly say that the general assumption involved in any application of the method rested on an induction of that character.

But I would not meet the objection on that ground, because I think there is a real point in it which another form of answer will bring out. Let it be granted that we can make A (our change) as definite as we please. Now, the question is, How do we know that it is not some other change P that is the real cause of d? Let us, for simplicity, suppose that P is the only other change in question, though of course there are, in fact, all sorts of changes going on. Let P be the rotation of the earth on its axis, an instance which I take because it cannot be eliminated by any form of experiment. Then let B C be a basin of mercury in communication with an upright tube, and let A be the exhaustion of air from the tube, d will then be the rise of the mercury in it. Then d follows on the introduction of A. But suppose it was really caused by P. This would have to mean not that it was due to the mere fact of the earth's rotation, for that had been going on all along and made no difference, but to some new phase of that rotation. Now, unless the phases connected with the rise of the mercury were very common, the probabilities would be against any such phase synchronising with A. By repeating the experiment we can clearly prove that they can not be common (for we can have the mercury quiescent as long as we like), and that they always synchronise with A. It is clearly improbable that there should be any such phase of P always falling at the moment at which we introduce A. By a few repetitions we can raise the improbability indefinitely. Of course, as this improbability increases, so does the probability that A is the cause.¹

¹ And this, in fact, is the process employed by any experimenter, if he has reason to suspect any 'periodicity' independent of the change introduced by himself. He *repeats* his experiment, *varying* the period until he thinks he has eliminated the chance of a coincidence.

But, we shall be asked, If we once admit probabilities, what becomes of stringent proofs, universal inferences and the rest? It is clear that chance does play its part in our conclusions, and this must affect the validity of our method. Does it render it quite nugatory? And, what is still more important, does it lead to the conclusion that our inferences and beliefs as to co-existences and sequences are destitute of principle?

1. Let us first compare the Method of Difference with the *Inductio vulgaris*, the simple enumerations of ordinary life. This form of induction also rests on chance. It might chance that all the ballot-balls I draw were black and yet there were some white ones in the box. Clearly enough, the universal conclusion that we draw from a number of instances is based on the improbability that we should find so many coincidences without some connexion. But what sort of connexion? Of this we are told nothing. For example, an enormous number of vegetables are destitute of any apparent power of locomotion. When I say apparent, I am speaking of what appears to the non-botanical eye. The non-botanical observer accordingly generalises and says, No vegetables have the power of locomotion. Now what was the nature of his evidence? Symbolising, we may lump together the set of characters which he means to express by the term vegetable as A, and say that he asserts an universal relation between them and d, the absence of locomotive powers. But now what has he omitted? He has taken no account of the possible existence of any number of facts besides those which he observed, any one of which may be the real ground of d. Symbolising, he had A B C D E . . . , d e f . . . over and over again, and he never tried to eliminate B C D E. Hence while there was a high probability of some connexion between A and d, there was no probability whatever of A's being the cause of d. Any one of the other facts might be the whole cause, and A and d might for instance both be effects of B; hence in some new instance B might produce A, while 'counteracting causes' might substitute something else for d. Accordingly the microscope reveals that many minute vegetable organisms have the power of locomotion.

I pass over the greater ease with which the Method of Differences can show the probability of its conclusion, and the higher degree of certainty which it can obtain, and I attend only to this point of contrast. Both involve the Law of Chances; but where as under Simple Enumeration the probability obtained is merely of some connexion, upon the Method of Difference it is the probability that A is the cause of d. Thus, even if we are reduced to probabilities, we know in this case precisely *what* is probable.

2. But how does the introduction of Chance affect the general character of our reasonings? Does it or does it not reduce inference to a more or less confident expectation? I think two considerations will refute this suggestion.

In the first place, we may for a moment regard chance as a

kind of surd in our inferences. Granting chance eliminated we proceed in safety. I shall try to show later on that upon this assumption we can reason from particulars, and that this Method of Difference represents one type at least of such reasoning. Taking facts as they are, we cannot of course always infer with security. So far as we do infer at all it is upon the tacit or explicit assumption of the Law of Chances. But given that law we may still infer rightly or wrongly. We may be reasonable or unreasonable, and the aim of Logic, as I understand, is to lay down the criteria of what is reasonable, and this, as I shall try to show, the Method of Difference has in part done.

But, in the second place, chance is not altogether a surd. It expresses not merely an expectation of our own minds, but a law that holds true of all nature. Taking the case of the experiment which we discussed above, when we say that it is infinitely improbable that any phase of P is the cause of d , we mean that we might draw such inferences an infinite number of times without coming wrong. And, speaking generally, whenever I say an inference is probable, I must mean that if I always went upon such an inference, I should find myself right more often than wrong. The point is that the Law of Chances implies a certain distribution of the forces of nature. We should not say that it was equally probable that a penny would turn up heads, or that it would turn up tails, unless we believed that, in a large number of trials, the number of heads and tails would approximate to equality. For it is clear that we do not exact absolute equality in any given finite number; and it is equally clear that it is no use talking about an infinite series. But I will formulate the law in this way, that, if in any series of trials, the numbers of heads and tails do not turn out equal, a longer series can always be found, in which the numbers do approximate nearer to equality. And I say that, if we tried this, and found it fail, we should give up saying that the chances of heads and tails were equal, and should say that one was more likely than the other. Now this assertion of convergence to equality is an assertion, inexact and incapable of being made more exact, of the way in which facts happen. It is an assertion about the order of Nature, and it is as such that it is one of the bases of our inferences.

It may be said that I have dwelt too long on the part played by the Law of Chances, since in the actual processes of science every experiment does really involve, not merely probabilities, but fully established conclusions. This is true, and it is as working upon such results that scientific methods have their value. But these results themselves have to be attained somehow, and somewhere or other they rest upon probabilities. To show the real scope of any inference, then we do best to strip it, as far as possible, of antecedent knowledge, and exhibit it as resting immediately, not indirectly, on the Law of Chances. My

aim has been to define by this means the true character of a scientific proof. Upon a certain assumption it establishes what follows. This or that is probable or improbable; then the same degree of probability attaches to this or that other assertion. When we have said that chance enters into an inference, we have not said all about the matter. We have stated one part of the case only. We have still to ask whether, given that so much is chance, the rest is valid inference or invalid, good reasoning or bad?

Thus, so far as the practicability of our method is concerned, we see that it is applicable only upon certain assumptions—assumptions either based on previous experience, or on that truth holding of Nature, as a whole, which we call the Law of Chances. Upon such basis we have seen that the method must work, if it is to work at all.

II. But does it work at all? Or is it, when applicable, fallacious? Granted all the implications that we have seen to be necessary, does the method help us in any way? The contrary view has been upheld by Mr. Bradley, who maintains that the claim of the method to take us from particular to universal is wholly unfounded. Let us consider one or two of Mr. Bradley's criticisms in detail.

(a) Mr. Bradley's first criticism is that the method really starts from universals.

"The fact is *made* a particular fact by the presence of that, the absence of which is postulated beforehand by these formulas. A universal judgment is *made* universal by just those attributes which are pronounced indispensable in the material for these Methods. The moment you have reduced your particular fact to a perfectly definite set of elements, existing in relations which are accurately known, there you have left the fact behind you. You have already a judgment universal in the same sense in which the result of your 'induction' is universal" (*Principles of Logic*, p. 385).

Really, this criticism appears to me to explain the validity of the method rather than to impugn its value. It is precisely because to assert a particular sequence is, so far as that sequence is definite, to imply an universal, that reasoning from particulars is possible at all. And it is precisely the comparison that makes the sequence definite. To discuss the whole question adequately would involve going into Mr. Bradley's theory of judgment, for which I have no space, but perhaps I may be able to show, in a few words, why Mr. Bradley's criticism appears to me to miss the mark.

His instance is one which falls under the Method of Agreement. I am concerned with the Method of Difference, and will, therefore, venture to substitute an illustration of my own. I stimulate the vagus nerve of an animal, and observe the consequent inhibition of the heart's action. Now where was the

'universal' from which I started? It is the fact that this stimulation was the *only* change introduced—that it was perfectly definite. This definiteness (if I understand Mr. Bradley aright) is what makes it universal.

Now, I ask, what does this phraseology come to? What does it mean more than that this act of stimulation has certain definite general attributes? And what does the word 'general' mean, but that in these attributes it precisely resembles other acts of stimulation? Despite its 'general' attributes, it is an act performed here and now before my eyes. That is what I mean by calling it particular, and when I say I can reason from particulars, I mean that I can reason from the facts that I observe.

Mr. Bradley appears to mean something different by 'particular,' viz., that which particularises those attributes of the fact before us which are not general. In that sense of the word it is clear enough that you cannot reason from particulars. The particularities of the thing would be precisely that from which you could not generalise. But the particular fact, in the sense of the fact which I observe, has general attributes; it is, as Mr. Bradley would phrase it, at once universal and particular, and, therefore, we can reason from it. Our first judgment is—'This fact, having the attribute A, was followed by that fact D, the concomitants of A not being followed by D, apart from A'. Our inference is—'Any other A will be followed by D,' or, in the form of an universal judgment, 'A as such produces D'. I shall go further into the grounds of this inference presently. At this moment I wish to insist only that our premiss is a particular fact of observation.

(b). Mr. Bradley's second criticism is that the Methods do nothing but eliminate a part of a content already general. Now in a sense the content from which we start is already general, i.e., given all the antecedents again as they are now, we shall have the consequent. But the antecedents as we first observe them may be so indefinite that we can make no general statement at all. To go no further than the instance which I took above. Let us suppose I am shown a dead frog which has been laid open, and am told that the *vagus* has just been stimulated. If I know nothing of physiology this last remark makes no impression on me; I observe that the heart is motionless and I put it down to the death of the creature. Here then I have the universals which one instance gives me—the deadness of the frog and the stimulation of the *vagus* as conditions, and the stillness of the heart as consequent. Now these conditions are utterly vague. There is a whole mass of them, and though I know that if the whole mass is repeated the consequent will be repeated, I do not know whether it needs the whole, or only some one collocation of the conditions, or, if only one, which it must be. If I made any selection at all, it would probably be a wrong one. Now introduce the element of comparison which the Method of

Difference requires, and the case is altered. I have only to wait and watch a moment or two and the heart begins to beat again. Then if I reintroduce the stimulus, it is once more stopped. I argue—'Stimulation of the vagus inhibits the heart'. What then have I done? From the vague complex of antecedent conditions I have by comparison isolated one which is as definite as possible, and connected with it a definite effect. For a vague universal involving many known, and possibly more unknown, conditions, I substitute one that is precise and definite. I do not see how any method could do more, inasmuch as every 'particular sequence,' *i.e.*, every sequence that we observe has, in one way or the other, a universal character. We always know that, given all the antecedents as they are here, all the consequents will be as they are here. But what we want to do in Induction is to connect the elements together, and discover which belongs to which. We always know that the whole mass coheres somehow, but we want to trace the fibres.

(c) This, I think, will help us in discussing Mr. Bradley's third criticism, which I venture to think the most valuable of all. I confine myself again to the Method of Difference. Mr. Bradley points out that if I have

A B C . . .	B C
d e f . . .	e f

I cannot at once say that A is the cause of d universally, but only in this one case. Here, I think, Mr. Bradley has put his finger on the most important limitation of our method. The neglect of it is due, as Mr. Venn has pointed out, to our loose use of symbols. We speak of A B C as a set of antecedents, as though A, B and C could exist, and have precisely the same effects, whether in combination or in isolation. But clearly, if we know nothing whatever about the nature of our facts—and that is what the use of symbols always supposes—we can make no such assumption. We cannot proceed by simple addition. We cannot tell how the action of A may be modified by B or C.

This must limit our method in scope, but I shall try to show that it does not do away with or even lessen its utility. The instance just discussed is sufficient to show that we gain some universal knowledge, though not all that we may require, from a single application of the method. We have seen that by it I make the universal judgment—'Stimulation of the vagus inhibits the heart.' Yes, says Mr. Bradley, but so far as you know, only in dead frogs. Quite true, but the method has already taught me something, *viz.*, that that which stops the heart in a dead frog is stimulation of the vagus. I prove that this stimulation is necessary to the inhibition. But by repeating similar experiments I can do more: I can vary the animal, or I can vary the conditions, *i.e.*, I can do it to an anæsthetised frog, instead of

a dead one. These cases prove that the death or the specific organisation of the animal makes no difference. As long as it has a heart and a vagus nerve the connexion holds. These fresh instances are simply cases of Method of Difference reversed. B and C are changed, and no difference appears.

Originally, then, I have

A B C D . . .	B C D . . .
m n o p	n o p

Whence, I say, that, under the conditions, B C D . . . , A is the cause of m. Now I can vary B and C. They make no difference, and hence I can say, under the conditions, D . . . and whatever may be the other concomitants, A is the cause of m. In this way I may (and the scientific man does) eliminate every number of possible conditions.

My conclusion, then, is that the Method of Difference presupposes either existing deductions or the Law of Chances. Its conclusions cannot be more certain than these presuppositions warrant. On the other hand, starting from such basis as they afford, it is a true account of the method by which we reason to fresh results. Its material is the concrete fact of observation, and in that it discerns what elements are in universal connexion. A single application of it will establish this connexion as holding under the conditions here existing. Repetitions of it will eliminate such of these conditions as are unessential.

IS THERE AN *A PRIORI* KNOWLEDGE?

By J. SOLOMON.

In the interminable dispute about the nature of knowledge, and especially about the views of Kant on that topic, no phrase stands out more clearly than '*a priori* knowledge' as at once the flag of one party, the red rag of the other. Yet, in my opinion, the two factions are less profoundly at variance than they suppose. It is possible to be a thorough empiricist and yet to feel under no common obligation to Kant. Such at least—I admit the unimportance of the fact—is my own attitude. To the phrase '*a priori* knowledge' strictly construed I feel an abhorrence not less than Mill, or Prof. Case in his recent work, *Physical Realism*. The combination of words is, in the strict sense, to my perception at least, unmeaning: 'knowledge' is of things; and '*a priori* knowledge' is equivalent to 'knowing things without knowing them,' without having come into any sort of contact, direct or indirect, with them. How such an absurdity can be found tolerable, since we have ceased to assume that the Creator esta-

blished for all time a harmony between the mind of man and the universe, may seem at first an impossible problem. Really, however, what the self-styled adherents of '*a priori* knowledge' establish is something very different from such an unmeaning figment. Knowledge is the mirror of the world to us; but it is also the result of a process by us. This process may be studied either by analysis of its results and comparison with that from which they have been derived, or an attempt may be made by psychological inspection, either of others or introspectively of ourselves, to reproduce its steps. To some the former, to others the latter, seems the more hopeful mode of examination; according to the sides men take they speak of rescuing psychology from the web-spinning of metaphysics or of purging metaphysics from alien empirical psychology. Neither side has really cause to abuse the other; both have done good service and taught us much. But the point here insisted on is, that both agree that knowing is a process, in which we, our self, our mind—phrase it as one will—takes an active part. This being admitted, it is asked, What is it that our mind does, and how do its processes end in producing a reflexion of the world? The answer can only be that the world must be of such a nature that mind, operating as it cannot but operate, is yet successful in reproducing it. To put it another way, mind cannot proceed a step in the construction of a world without making some assumptions about it. If some or all these assumptions are untrue, then mind is baffled either at the very start or at some subsequent point. These assumptions are what Kant and his followers most unreasonably and tactlessly (for, as we have said, the phrase was sure to produce violent remonstrance) call '*a priori* knowledge'. As has been said above, the assumptions are not knowledge, but conditions, which objects and the world at large must obey if they are to be knowable and conceivable. Those who asserted '*a priori* knowledge' had always to meet the practical question how they could truthfully attribute to children and the uneducated an understanding of, and a belief in, certain highly abstract propositions. The fact is, of course, that the uneducated do not *know* these propositions, but—what is very different—practically assume them, as analysis shows, by trusting to the natural working of their mind to bring out the truth of things. With this view the latest and not least vigorous impugner of Kantian doctrine, Prof. Case, agrees. He is practically at one with Kant in asserting, against the association-school, that knowledge is not something done *for* the mind; that the mind is not a mere plate on which the world gradually pictures itself by presentation, primary and secondary (if we may so describe the presentations or images evoked by association). I do not, of course, intend to make light of the gulf between the opinions of Prof. Case and those of Kant. Between the two views, that the immediate data of experience are a formless manifold (as Kant holds) and that these data are related objects

of a synthetic sense (as Prof. Case holds), there is perhaps an abyss that cannot be bridged. Nor am I at present concerned to deny that the Kantian theory of the data (easy as it is to attack) may still possibly be right. But where Kant and his repeaters are certainly *not* right is in speaking of that which distinguishes formless sensation from persistent and coherent knowledge as itself knowledge, and knowledge of that impossible kind designated by the contradictory epithet '*a priori*'. The mind by certain processes works up its primitive material (which may be as slight as Kant thinks, or as solid as Prof. Case holds); it finds its results verify themselves, and it thus acquires the right to call the assumptions on which alone it could work laws of the natural world: but to say that it '*knows a priori*' the world, to this limited extent at least, '*knows a priori*' that it has such laws, is the perfection of unreason and self-contradiction. Without the '*verification*' just spoken of, the mind would not '*know*' the laws at all. Kant himself felt this, but evaded its full force and misled his disciples by admitting it in a phrase of characteristic awkwardness. Though, said he, these *a priori* known laws apply to the world, yet they apply only to the world of experience, of phenomena. But this is, in fact, to admit that the laws—however much *a priori* in their origination in a conscious mind—are only *known* by the confirmation of them supplied by experience; as, in fact, otherwise nothing can be known.

An illustration of the above remarks is supplied by a recent work, which, modestly disclaiming to discuss metaphysical topics, supplies a better basis for such discussion than most of the metaphysicians have done. Dr. Venn commences his *Empirical Logic* by some chapters on the postulates of the subject. These are that the world is of such and such a nature. Dr. Venn pursues his subject with much acuteness and elaboration, and shows that the postulates about the '*logician's world*' or '*inferrible world*' are more numerous than might be supposed, and capable of distincter and closer specification than they have received. With his merits in detail, however, I have nothing to do. I only call attention to the broad, sober and eminently reasonable way in which he grasps the fact that, while we cannot but think of our minds and the world as different, yet between mental powers and the world there is an inevitable correlation, of which the details may be indeed variously apprehended, but the general truth must be allowed by all. Hegelians, of course, will refuse to recognise this explanation, as they would refuse to recognise the difficulty it purports to explain. Deny that there is any world except that existing in our sensations and the thoughts to which these, when connected together, give rise, and you naturally need no explanation of the correlation of the mentally-constructed world and the really existent world. I do not set myself to refute their theory; it is one rapidly losing hold of the minds of men, and it does not seem likely to revive. It is enough

to say—as has been said often—that men have no more ground for believing in the existence of other men—other ‘minds,’ as Hegelians would say—than they have for believing in the existence of an independent world generally: one may add, with Aristotle, in a somewhat different sense to his, *διάνοια αὐτῇ οὐδὲν κινεῖ*; meaning that, even if an unchanging world could be regarded as a mental or imaginative picture, it is impossible so to regard a varying world like our own, and, above all, that most important class of variations, those in our own state. I do not add that Hegelians can give us no account of the relation of God—whom they by no means regard as unknowable—to the world, of which He is at least the author in some fuller sense than we ourselves: on this point it would be unfair to press the school, because, though they show no superabundance of modesty in assailing the problem, those who might accuse them of failing in it certainly do not pretend to be very successful themselves. But with regard to their other error, that, so to speak, of locating the whole material world in our own minds, there one may impugn their reasonings: first, by pointing out the self-contradictory consequence of their blunder, that they must end by ‘locating’ other minds within ours; next, by pointing out its origin—namely, a blind and one-sided insistence on the truth in which they, the Kantians, and those who are empiricists agree, that without the co-operation of mind and thought and will we should never read the independent world with the detail, accuracy and depth with which we do read it. Now this, it may be repeated, implies, not an origin of the world in ourselves, as the Hegelians say, not an *a priori* knowledge of it in at least some of its features, as the Kantians say, but a correlation of the World with Mind and its processes, which Thought assumes and Experience verifies.

The word ‘assumption,’ so often used in this paper, calls for some remark. It may be said that the theory above stated merely substitutes for ‘*a priori* knowledge’ something only one degree more credible—namely, ‘*a priori* belief’. It will be said that, in admitting general and highly abstract propositions to be incapable of apprehension by children and the uneducated, I am cutting the ground from under the theory that such propositions are ‘assumed’ or ‘believed’ by them. Those who have read Prof. Case’s book with the attention it deserves will be sure to remark that he at least gives no countenance to the idea that such propositions are either understood or assumed by those who may be, in a sense, said to apply them. And with regard to the illustrative chapters of Dr. Venn to which I have referred, it may be remarked that these expressly purport to state a ‘logician’s’ postulates about the world, and therefore assuredly not the postulates of children and the uneducated, who are certainly not logicians. My statement, however, was not that these postulates are ‘assumed’ or believed, or even consciously

recognised by such rudimentary students, but that they are 'practically assumed' by them—that their reasonings, when considered, will be found to conform to them. Why they should conform to them, is another question. I only say that the conformity precedes all experience and makes it possible, and that it cannot, therefore, be a deduction from experience. To what it is really due, is an important question, to which more than one answer has been or may be given. It may be said—I borrow the expression from a friend—that 'the laws of nature have so long been affecting our inherited organisms that we cannot help thinking by them as automatically as the lungs move to inspire and expire, or the heart contracts and dilates to circulate the blood'. This would be an evolutionist theory of thinking, and, as such, would in the present day meet probably with ready acceptance. It is not, however, supported by such statements—undoubtedly true as they are—as that men only gradually arrived at the apprehension of the laws which logic now recognises as essential to thought, that Plato contravened the law of Contradiction, that Aristotle was ready to admit exceptions to the law of Uniformity. For the question is not, How and by what stages did men arrive at a conscious apprehension of the essential laws of thinking as distinct from mere imagining? but, How came men to think at all, to obey those laws which only after centuries or millenia were discovered to underlie thinking? It may be that 'the environment' gradually forced them into such obedience, though I am unable to conceive how. To me it seems rather that men thought (and therefore obeyed unconsciously the laws it took them so long to formulate) through an original impulse inevitable to all beings that had become conscious of themselves. On the word 'impulse' I desire to lay stress. It might be supposed that, when it was once admitted that experience could not have taught men how to think, since without thinking there could be no experience of the requisite kind,—it might be supposed, I say, that there was no other alternative but to allow that men thought by 'instinct'. 'Instinct' is a kind of 'impulse,' and it might be urged that between the answer just given and my own there is no difference. But of 'instinct,' beyond that it is an 'impulse,' we understand nothing, though we may surmise or even prove its physical genesis. On the other hand, 'an impulse inevitable to beings conscious of themselves' is not so hopelessly indefinite. A being conscious of itself is conscious of its wants, and conscious of the limitations to the satisfactions of those wants. Of these limitations it naturally strives—at first with a purely practical interest—to form distinct ideas, to shape them into personalities and invest them with powers, as it has come to recognise itself shaped and invested. It could not express at first either its own motive or its own processes: it falls into endless blunders of detail; notably, it makes that stupendous mistake of finding living beings every-

where which has led anthropologists to describe earliest thought as 'Animism'. But it already holds and obeys, though unknown, the laws of logic, at least in its practical inquiries. The last proviso is perhaps necessary, because the well-known distinction of 'speculative' and 'practical,' if it could have been made intelligible to the primitive man, would probably have had its meaning inverted. To us truth is the end of Speculation; Practice, though it certainly cannot afford to disregard truth entirely, ostentatiously disregards much of it, and, in fact, its most interesting sections. But in Practice, and in Practice alone, was the uncompromising severity of truth felt by the primitive man; in his practice we must look for his logic: his speculation, of which he had no lack, was a tissue of imaginative, incoherent dreams, with no real significance or importance, exercising his fancy and satisfying his emotions, and not needing or pretending to do more.

Such is the explanation I should give, if asked how men come to think logically, or as I should prefer to say, come to think at all. For thinking is just the search for the systematic and permanent, and the object of its search conditions its procedure, making it what afterwards came to be described as logical, and implies a belief in a world the characteristic of which is to possess, nearer or further from its surface, system and permanence. Man did not commence this search, and by this method, because he knew 'the game was worth the candle,' still less because he knew the rules of the game, but simply because he had to do it in order that he might live. And now, to leave what has properly been an episode, I may perhaps be allowed to repeat, without opposition, what it was the primary object of this paper to establish, that philosophers are within measurable distance of admitting by agreement that, though '*a priori* knowledge' is a contradiction, yet without an '*a priori* something' there would be no knowledge, without, that is, the 'practical assumption'—not belief in or recognition—of certain fundamental characters in the world to be known.

V.—CRITICAL NOTICES.

The Critical Philosophy of Immanuel Kant. By EDWARD CAIRD, LL.D., Professor of Moral Philosophy in the University of Glasgow, &c. 2 Vols. Glasgow: J. Maclehose & Sons, 1889. Pp. xxiv., 654; xix., 660.

In these volumes Prof. Caird has fulfilled the promise which he held out in his Preface thirteen years ago of completing his view of Kant's philosophy by a consideration of the second and third *Critiques*. He has been better than his word, for he has recast the whole of his previous volume, and has embraced in his survey the *Religion within the Limits of Mere Reason*, as well as a variety of subsidiary treatises. He may fairly claim that what he now offers us is an organic view of the Kantian thought in all its ramifications, and in its various stages or aspects. The labour and knowledge which have gone to the writing of these two massive volumes are so great that anyone must shrink from the attempt to review them in a few pages. An attempt must be made, however, to indicate the general character of the book, and to comment perhaps on some of its interpretations.

In deference to some of his critics, Prof. Caird has restated and modified some of his positions; more especially, he tells us, he has been led "greatly to extend and modify" his view of the Principles of the Pure Understanding. But, on the whole, the standpoint of the new work remains the same as that of the earlier *Philosophy of Kant*. It is very lucidly stated in the Preface: "I have attempted to show that there is an unbroken continuity in the movement of Kant's thought, and that the lesson of his philosophy as a whole is definite and self-consistent. *This lesson, however, he did not himself fully understand.*" The last sentence, which I have taken the liberty of italicising, stamps the character of Prof. Caird's exposition. It is repeated in slightly varying forms of expression from chapter to chapter, and sometimes almost from page to page, so that if certain sides of Kant's thought are set in a strong light, while others are left in shadow, the reasonable critic has no right to complain that he is misled as to the relative prominence of the various elements in Kant's own mind. Prof. Caird frankly admits, indeed impresses upon us, that much of his interpretation is rather inferentially involved in Kant's thought than consciously held and taught by him. Kant's saying that the advance of time often enables us to understand a thinker better than he understood himself is expressly appropriated to his own case (ii. 630). Kant's, we are told, is "an argument which cancels and reconstitutes the imperfect premisses from which it starts," but "Kant himself never quite realised the full bearing of his own work, or the incon-

sistency of the end of it with the beginning" (i. 459). Under the head of Ethics we are told again that "here, as in all other parts of his philosophy, Kant seems to combine two inconsistent points of view" (ii. 254). The duty of Kant's interpreter, therefore, it is argued with much force in the Preface and Concluding Remarks, is "to detect a consistent stream of tendency which, through all obstruction, is steadily moving in one direction" (i. p. x.). Or, in other words, the growth of a doctrine is its criticism; so that we have to read Kant's meaning "first, in view of his own mental development as shown in his successive works, and secondly, in view of his influence on the subsequent history of philosophy" (ii. 630). In thus emphasising the standpoint from which the commentary is written, I do not mean to question the legitimacy of the method followed; but Prof. Caird has, I think, acted wisely in making this as prominent as he has done throughout his volumes. For, as different views may be taken of the legitimate growth or development of a doctrine, such a method, if unexplained, is apt to lead to controversies which are eminently unfruitful, and which have no visible end.

The introductory chapter on "The Idea of Criticism" is intended to state "the problem of Criticism in general, without reference to the peculiarities of Kant's statement," or, what comes to the same thing, to formulate the position of "a consistent critical philosophy". It is thus a further key to Prof. Caird's method, and in some respects a statement by anticipation of his ultimate results. It is a very thoughtful and carefully expressed argument, on which the reader will do well to return after working through the rest of the book. Criticism is here described broadly as the regress which leads us to formulate the preconditions of knowledge. The source of Criticism is ultimately found to lie (where Kant placed it) in the modern "antinomy between the principles of physical science, and that unscientific consciousness of spiritual reality which is expressed in religion and morality". Its result is to show that the world of science is an abstraction so long as it is unrelated to a conscious subject; so far from matter explaining spirit, "we must say that even matter itself cannot be fully understood except as an element in a spiritual world".

The account of Kant's precursors in modern philosophy is considerably shortened in its new form. On the other hand, the careful account of Kant's pre-critical writings, which was a feature of the former volume, is extended to more than twice its previous length, and embodies all the copious recent research on the subject in Germany. Prof. Caird distinguishes three periods in Kant's mental development. The first of these, during which he is a dissatisfied adherent of the Wolfian philosophy, was brought to a close in 1763 by "three essays, which may be regarded as Kant's declaration of independence". These essays are those on *The Sole Ground for a Demonstration of the Being of*

God, on The Evidence of the Principles of Natural Theology and Morals, and the Attempt to introduce the Conception of Negative Quantity into Philosophy. In the last-named, the distinction between logical negation and real opposition led Kant to the conclusion that the causal connexion, inasmuch as it is beyond the scope of the laws of identity and contradiction, must be given in experience. At this stage of his career, therefore, he approximated, in this as in other points, to the position of Locke, not having yet learned Hume's lesson that sense can give no real connexion. Kant's second period was a short and transitional one, marked by a sceptically-coloured empiricism or positivism, which finds expression in the curious essay *On the Dreams of a Ghostseer as illustrated by the Dreams of Metaphysics* in the year 1766. In this, says Prof. Caird, we have "a curious anticipation of the critical philosophy on a lower level of speculation". Kant's third or Critical period may be said to dawn about the year 1768-9, and to give clear evidence of itself in the *Dissertation* of the year 1770. A separate chapter is devoted to the development of the Critical Philosophy in the eleven years between 1770 and the publication of the *Critique of Pure Reason*. "The year 1769," says Kant in one of his recently published *Reflexionen*, "brought me great light." The idea of space as an *a priori* form had already been reached in the essay on *The Distinction of Regions in Space*, published in 1768, and in the following year Kant was engaged in formulating the positions which appear in his inaugural *Dissertation on the Form and Principles of the Sensible and Intelligible World*, and which are in great part (though with certain important exceptions) identical with the doctrine of the *Æsthetic*.

After the Introduction (running to 226 pages) comes the First Book, dealing with the *Critique of Pure Reason*, and occupying the rest of vol. i. and the beginning of vol. ii., 570 pages in all. The first chapter of this, which treats "The Problem of the Critique" in connexion with Kant's own Prefaces and Introduction, strikes one as a very masterly and well-balanced statement. It opens with a frank admission of the different views that may be taken of the Critical Philosophy and supported by *bonâ fide* quotations from Kant's own works. It is even allowed that "the conclusion to which the *Critique*, as a whole, brings us is one which coincides, in the main, with the results of Scepticism. For while all the *a priori* possessions claimed for the mind are, in a sense, vindicated; while the *a priori* forms of perception and the *a priori* conceptions of the understanding are both proved to have objective validity, and even the ideas of reason are shown to have a necessary function in relation to the knowledge of objects; yet they are all conceived to expend their usefulness on experience, i.e., on the knowledge of objects which are merely phenomenal: so that nothing seems to be left to bring us into any relation to things in themselves" (i. 230). But while this is so,

stress is laid—and quite fairly laid—on the fact that the *Critique* “gets a different meaning, according as we contemplate it as a whole in itself, or as a part of a wider plan which, from the first, was present to Kant’s mind, at least in its main outlines”. And in this connexion Prof. Caird summarily dismisses the ridiculous misrepresentation of the *Critique of Practical Reason* as an afterthought on Kant’s part. There can be no reasonable doubt that the object which Kant had in view from the outset was positive, not negative; the negative criticism was only a means to clear the ground, to make room for belief. Kant’s original object was, as Prof. Caird expresses it, “the emancipation of the self, and also of the other super-sensible realities from the conditions under which they must be brought, if they were objects of experience” (i. 244). But if the result of Kant’s most elaborate work is a conclusion so widely divergent from Prof. Caird’s view of a consistent Critical philosophy, and if, moreover, Kant himself, as Prof. Caird says, never abandoned his “imperfect premisses,” but to the end held as stoutly to these results of the first *Critique* as to any of his ethical conclusions, then it becomes a question whether it is sufficient simply to indicate this line of thought at the outset, and to leave it substantially without further exposition beyond a passing allusion to its existence. It becomes a question whether there might not have been a gain in clearness, if a consecutive exposition of Kant’s scheme of the world had been given first, with all its imperfections and (if you will) incredibilities on its head, but with these sunk as far as possible, left without comment, till the turn of criticism came. Such a reconstruction of Kant’s own mind, with its mingling of very homespun dualism and glimpses of far-reaching speculation, may, perhaps, be impossible; yet one would suppose that, after so much exertion, Kant must have formulated to himself a view of the world, which is, at least, statable in words. Such a presentment, if studiously fair, would of itself have brought to light the incongruous elements in the statement, and would have made it more intelligible how thinkers who sometimes differ so widely from one another should agree in claiming descent from Kant. Such considerations suggest themselves somewhat forcibly in connexion with Prof. Caird’s treatment of the unity of the self. He points out in the last chapter of the Introduction how the passage from the *Dissertation* to the *Critique* involved a change from the assertion of the unity in *God* of all interacting substances (including the knower and the objects of his knowledge) to the assertion of the unity of the world *for the self*. Now the immediate, and for Kant by far the most important, result of this Copernican change of centre, was the reduction of his universe to a purely subjective world, a world of perceptions which, in their leading determinations, have, it is true, an objectivity or necessary validity for all similarly constituted beings, but which are not the world of real things.

Instead, however, of bringing out this point, Prof. Caird at once transforms Kant's subjective or anthropocentric unity back again into a theocentric unity by the statement that, "in self-consciousness, there is contained not merely the consciousness of the subject as opposed to the object, but also the consciousness of a unity which, while it involves that opposition, at the same time transcends it". In the consciousness of self is involved also the consciousness of "the universal unity or centre which all knowledge implies; in this sense the consciousness of self and the consciousness of God are essentially bound up with each other". Now I am not arguing here against this doctrine as a substantive philosophical position; but, seeing that Kant himself, as Prof. Caird admits, always held by an individual noumenal self acted on by an independent noumenal object, the unity of apperception being only the formal unity of the individual's thought, it might have been better if Kant's own theory had been explicitly developed by his commentator before introducing so complete a transformation of his position and his whole habits of thought. But it is too late to debate a question of method like this. The attentive reader is, at least, able to gather from Prof. Caird's admissions and incidental statements those features of Kant's theory which make it, as it stands, so widely different from Hegelian idealism.

The most interesting passages in the chapters which follow are those which deal with the synthesis of imagination and its relation to the intellectual synthesis through the categories. On this point Prof. Caird, if he has not shifted his position, has at any rate greatly modified his former statement. Whereas in the *Philosophy of Kant* we seem to pass at a step (as perhaps in consistency we ought to pass) from the chaotic manifold of sense to the categorised objects of experience—objects constructed out of such manifold by the unity of apperception bringing the categories to bear upon it and arranging it in the forms of space and time—there is now full recognition of Kant's use of perception, or mere perception, as a middle term between the unsynthesised manifold of sense and the categorised unities of experience or cognition proper. This is the point emphasised by Dr. Stirling in his *Textbook to Kant* with such damaging results to the coherence of the Kantian scheme of things; 'crude perception' is the name there given to the first result of synthesis. The first synthesis of the units of sense, says Kant early in the 'Analytic,' is "the mere effect of imagination, a blind function of the soul, of which, though indispensable if there is to be knowledge at all, we are seldom even conscious. But to bring this synthesis to *conceptions* is a function which belongs to the understanding, a function by which it for the first time puts us in possession of knowledge or cognition in the strict sense of that term." "The synthesis of the imagination," he repeats below, "gives us as yet no knowledge." Now there is a great temptation to fix upon

certain expressions of Kant's which seem to treat the imaginative and the intellectual syntheses as different aspects of the same act; but in view of his repeated statements to an opposite effect, this cannot be maintained to have ever been Kant's real meaning. It is useless to deny that Kant supposes the elements of sensation to be put together into "distinct images of perception" (in Prof. Caird's phrase), "and ultimately into one imaged continuity of a world in space and time," by the immediate action of the subject upon the sense-manifold, without the application of the categories, and that only at a later stage there supervenes upon this world the conscious synthesis of the understanding through the categories. At times Kant appears to speak of this unconscious synthesis as yielding us, not objects, but only "a blind play of images, i.e., less than a dream," or again, as giving only "a chaos of appearances filling the soul, but for us as thinking beings as good as nothing at all". In a letter to Marcus Herz, written in 1789, he compares our mental state without the categories to the animal consciousness: "If in thought I make myself into an animal, I can conceive sensible ideas to carry on their regular play in my soul, seeing that they might still be bound together according to an empirical law of association, and so have influence upon feeling and desire. . . . But then I should not through these ideas have knowledge of anything, even of that state of myself which the ideas imply" (i. 313). But at other times Kant talks freely of 'objects' as presented in mere perception, without their being referred to the functions of the understanding (that is to say, without their being categorised); and ultimately, though the judgment is, according to his own theory, the specific badge of categorised objectivity, he speaks in the *Prolegomena* of judgments of perception as distinguished from judgments of experience in the strict sense of that term. Hence the dilemma so mercilessly insisted on by Dr. Stirling. Prof. Caird recognises it and states it thus, in almost identical terms: "Kant recognises that an individual object as such cannot be presented to us in sensation, but only by means of a synthesis of imagination, which retains the elements that have been given in sense and combines them into one whole; a whole, therefore, in which all the parts are already taken out of their existence as successive feelings, and qualified by their relation to each other. . . . In other words, the object of perception I have before me is already determined by the conceptions under which, as it is supposed, it needs to be brought in order to determine it as an object of experience. All that remains to be done, therefore, when we bring together the conception and the perception, is to recognise that the latter is already qualified by that universal relation which is abstractly expressed in the former. . . . Already, therefore, in a perception which can be subsumed under the schematised conception, that qualification by conception must have taken place which the theory supposes the judgment to give by

so subsuming it" (i. 438). Prof. Caird's way of meeting this difficulty in a sympathetic spirit is (1) to emphasise the epithet blind or unconscious as applied to the imaginative synthesis, thus binding Kant down to those terms which describe the result as a floating of associated but unfixed images across the field of an animal consciousness, and denying *in toto* Kant's right to speak of 'objects,' much less of 'judgments,' in connexion with mere perception. (2) Founding on Kant's undoubted statement in a note to the 'Analytic,' that it is "one and the same spontaneity which in the one case under the name of imagination, in the other under that of understanding, produces conjunction in the manifold of perception," he argues that the difference between imagination and understanding is analogous to that between the unconscious or implicit use of a principle in particular cases and the formulation or conscious realisation of the rule upon which we have already been acting. The consciousness of the self and the consciousness of a categorised object as distinguished from the self arise in one and the same act; but just as the experiences of the merely perceptive or merely conscious subject were all, in Kant's phrase, "*capable of being united*" with the apperceptive unity of the 'I think,' so they were also, Prof. Caird argues, in virtue of that very fact, conformed likewise to the conceptions through which that unity acts. There is, as it were, a species of pre-established harmony¹ between perception and conception. "In other words, the synthesis of imagination involved in perception must be of the same character as it would have been if imagination, instead of acting on the data of sense *prior* to the synthesis of the understanding, had from the beginning been guided by the understanding to produce an image of an object according to a definite conception or rule supplied by itself" (i. 366). The images of perception are therefore prepared beforehand for their subsumption under the categories; or rather, their subsumption is an awkward mode of expressing our becoming conscious of relations which were implicitly involved in our perceptions all along.

This goes far, I think, to put an intelligible meaning into some of Kant's at first sight hopelessly divergent statements, but I question whether it relieves the real stress of the difficulty, as that existed for Kant, and as it has been signalised by Dr. Stirling. For we must remember that, to Kant, the categories, being *a priori*, are a subjective apparatus; and if that is so, the interposition of the blind synthesis of imagination only pushes the difficulty a step further back. Granted that in the synthesis of the understanding we consciously apply a category to determine

¹ Kant himself, in a passage quoted by Prof. Caird (i. 856), transfers this Leibnizian idea to the relation of perception and conception, but its application to the specific relation in question appears to be made by Prof. Caird himself.

a particular object or event because the object or event has already been fashioned in accordance with the category by a preceding unconscious synthesis of imagination, precisely the same question arises in regard to that first unconscious synthesis—the question, namely, as to the reason for the imposition of the category. Was that first operation a subjective synthesis conferring connexion and necessity of connexion upon data in themselves destitute of such connexion, or was it a response on the part of the subject to certain peculiarities attaching to the sense-data themselves, as these come from the side of the object? This may not be a difficulty in the system which Prof. Caird develops out of Kant, but it was a real difficulty to Kant himself, and, if pressed, is found to be fatal to his whole subjective scheme.

In the chapter on the 'Postulates of Empirical Thought' I would first note a statement which gave me pause when I met it before in Green's Lectures on Kant, and which is repeated here—*viz.*, that a complete knowledge of the conditions of the possibility of an object is equivalent to the reality of that object. "If we do not know all the conditions of the possibility of an object, we do not know its reality; and if a new perception enables us to discover such reality, it is by enabling us to complete our thought of its possibility. Kant, however, speaks as if that thought might be completed, and yet the object be conceived as merely possible so long as it is not presented in sense" (i. 598). Kant is thus blamed here for making what seems to me an obvious statement of fact. "If we could know the whole conditions of an object apart from perception," Prof. Caird proceeds, "we should know its reality." If this means that we should know what, *if experienced by way of sense-perception*, would constitute its reality, it is surely an identical proposition. But if it means that such complete knowledge of its conditions is equivalent to the actual appearance of the object in immediate experience—in sense-perception, if it is a sensible object—then I do not see how we can intelligibly make such an assertion. If it be argued that the only complete thought of an object is the divine thought, and that that is necessarily conceived as creating its object, which, by merely being thought of, is present to the divine consciousness as if in perception, then I reply that the argument is beside the point, because by defining the divine thought as perceptive or creative we make it quite different from what we understand by thought in the accepted and only intelligible meaning of the term. We only know what thought is in our own case, and in that case no amount of thinking brings us a step nearer perceiving; and it is only in perception, or at least in immediate experience, that we come into contact with reality.

Of the much-discussed 'Refutation of Idealism' Prof. Caird gives a luminous and eminently satisfactory account, which, one

would fain hope, might be accepted as a ruling on the subject for the future. "Immediately, and in the first instance, what Kant is attempting to show is that inner experience is so dependent upon outer experience that the denial of the reality of the latter must carry with it the (to Descartes impossible) denial of the reality of the former. . . . What he is speaking of is the relation of two empirical objects, or rather of two aspects of our experience." There is no hint, therefore, of a relapse into ordinary common-sense dualism, as if the permanent, in opposition to which we become conscious, were a thing in itself. "Yet it is true that ultimately the dualism in experience is in his mind connected with the opposition between the Ego in itself and the thing in itself; for the latter is 'the ground' to which the materials of experience are attributed" (i. 634-8). In the remainder of the chapter, Prof. Caird instructively points out how Kant's view of inner experience varied between the First and the Second Editions of the *Critique*. He regarded it at first as distinct from outer experience and co-ordinate with it, but came eventually to look upon it, not as an independent sphere of knowledge, but rather as a reflexion upon outer experience—a reflexion, it may be added, in which the distinction of outer and inner first arises. "The consciousness of the internal object is the consciousness of the process in us as sensitive beings by which the consciousness of the external object is realised. The former is, therefore, not a new independent consciousness added to the consciousness of the object, but simply a correction of the latter in so far as it leaves out of account the process *a parte nostra* by which it is realised. . . . To contemplate our experience as *inner* experience is simply to enrich our outer experience by bringing in the thought of its relation to feeling in ourselves as sensitive subjects" (i. 632-46).

The relation of the 'Dialectic' to the other two parts of the *Critique* is very skilfully put by Prof. Caird in his earlier chapters. In the 'Æsthetic,' Kant parts company with Leibniz through the generic distinction which he draws between perception and conception. The 'Æsthetic' is thus the "statement of a dualism which is partly overcome in the 'Analytic' by the reduction of sense and thought to elements or factors in empirical knowledge. But in Kant's view, this dualism cannot be completely overcome; and the 'Dialectic,' therefore, shows us thought recoiling from the imperfect result of its result in experience, and setting up for itself an ideal which with such materials can never be realised" (i. 285). This is further connected with a change which came over the idea of the noumenon as Kant pursued his speculations. "For though in the 'Æsthetic' and 'Analytic' the phenomenal character of the objects of knowledge is proved, in one sense of the term phenomenal, *i.e.*, in the sense that they are essentially objects of our consciousness, still the ultimate reason for separating noumena or things in themselves from these objects is given only in the

'Dialectic,' where it is shown that there are *ideas* which arise in connexion with experience, and which even in a sense are its presuppositions, but which yet are not realised in any of the objects of experience" (i. 231). The opposition of phenomena and noumena first appeared in the *Dissertation* as the contrast between the world of sense-perception and the world of conception or pure thought. Things in themselves are plainly, therefore, for Kant at this stage, the unknown objects which cause our sense-affectations; if we could know these objects without the intervention of space and time our knowledge would be no longer phenomenal but noumenal. When we advance to the *Critique* the shadow of subjectivity has passed over the conceptions of the intellect also. The categories are found to be limited to sense, and the noumenon becomes, therefore, completely unknowable by human intelligence, though it is still retained (and was retained by Kant to the end) as the cause of our sense-perceptive experience. In this acceptance of the term, the noumenal world is not necessarily more 'rich and strange' than the phenomenal, of which it is in fact the double. Its only feature is its inaccessibility, and if this line of thought is followed out, the noumenon ultimately shrinks into the impossible abstraction of relativism, a thing related only to itself. Prof. Caird does little more than indicate this relativistic strain in Kant's thought, and himself develops the idea of the noumenon in another direction. The noumenon is first of all the object of thought as opposed to the object of sense, but when Kant departs from this position in the *Critique* and treats the conceptions of thought as empty apart from a perceptive reference, he virtually, says Prof. Caird, criticises both sense and thought in view of a higher ideal. To do so, and to speak in this connexion of an intuitive or perceptive understanding "is to compare our dualistic mind, with its two disparate faculties of intelligence and sense, with the idea of a mind in which this difference does not exist or is overcome" (i. 187). In the second instance, then, says Prof. Caird, the noumenon becomes for Kant "simply the object of an intuitive understanding". The view which Prof. Caird reaches, as the consistent outcome of this second position is that objects are phenomenal because they are not in themselves *res completae* but imply a self for which they exist, and that the self is the noumenon of which objective existence is phenomenal. "The Kantian conception of nature as that which exists *for spirit*" leads directly to "the Hegelian view that it exists only as the manifestation of spirit" (ii. 90). But, as he says, this "is in a sense to invert the use of the conceptions of noumenon and phenomenon which we find in Kant". This Hegelian view Prof. Caird takes to be the real outcome of the 'Dialectic'. Rational Psychology is the attempt to determine the self as a *res completa* without taking account of its relation to the objective world; in Rational Cosmology, "the converse attempt is made to complete the circle or syllogism of the objective consciousness, and to de-

termines the objective world as a *res completa*, without taking any account of its relation to the self" (ii. 63).

Little space is left, unfortunately, for comment upon Prof. Caird's account of Kant's other works, though, as covering ground untraversed before, it is, in some respects, the most interesting part of the two volumes. But the lines on which it proceeds will be readily understood from the foregoing. The introductory chapter on "The Relation of Theoretical and Practical Reason" is excellent both in itself and for the light which it casts backward over Prof. Caird's own exposition. The line of criticism followed in dealing with Kant's ethics is concisely indicated in the closing paragraph of the chapter: "A process of reflexion upon the practical consciousness, similar to that which we have applied already to the speculative, will lead us to recognise . . . that, as in our *theoretical* consciousness we are not simply taking in information about a world which is alien and external to the self, but really coming to a consciousness of the self *in* the object, so in our *practical* consciousness we are not simply forcing the self upon an external and alien world, but determining and developing the self in an element which is essentially related to it, and which, therefore, cannot resist it, except so far as that self is at war with itself" (ii. 170). In other words, Prof. Caird condemns Kant's negative view of the moral life in its relation to sense and passion, in which are reproduced the characteristics of Stoicism. At the same time, he recognises that the permanent value of Kant's ethical work lies just "in the firmness with which he grasps the essential antagonism of spirit and nature in the moral life". Kant, however, sets desire entirely over against the moral will, so that any volition motivated by the desires or passions is treated as an enslavement of the moral personality. Over against the desires he sets the pure self-determination of reason as the true source of moral action. Now, as Prof. Caird points out, this is so far true, inasmuch as any particular desire is inadequate to the universal of the self; and, accordingly, if the desire be universalised—if the self be identified with it—the result is dissatisfaction and a division of the will against itself. But, on the other hand, the pure self-determining reason is necessarily a blank, so long as it abstracts from all desires; it has no content but those desires. What morality involves, therefore, is not, as asceticism teaches, the extinction of desire, but "the negation of each particular when taken *by itself*, and the restoration of it through the universal. In other words, it involves that each element of life should be regarded merely as an element, which owes its value to its place in an organic whole determined by one principle; and this, of course, involves that it is not to be willed irrespectively of the other particular elements, but in relation to them" (ii. 215). In the same connexion, the Formalism of Kant's ethical principle is discussed—the impossibility, that is, of deducing from it the particular rules of moral action—and the same

idea of moral action as constituting an organism or system is brought to bear upon Kant's proposal to test any individual maxim by universalising it. The rules of morality cannot be treated as so many independent and equally absolute laws. "When we regard the particular rules of action in the concrete, we find that we can universalise *no* such rule without contradiction. . . . To make either property or life an absolute end is to raise a particular into a universal, to treat a part as if it were the whole. But the true moral vindication of each particular interest cannot be found in elevating it into something universal and absolute, but only in determining its place in relation to the others in a complete system of morality. And in such a system there cannot be an absolute subordination of any one interest to another, but rather the different interests must alternately give place to each other" (ii., 88-9).

Kant's third formula, which sets the moral end in the realisation of a 'Kingdom of Ends' is treated by Prof. Caird as an advance upon the first two, in so far as it is a recognition of the fact that man as a moral being is essentially a social being; but by treating this kingdom as merely possible Kant falls back, it is argued, into the one-sidedness of a merely subjective morality. Prof. Caird's chief criticisms deal with this aspect of Kant's teaching. He emphasises strongly the social character of morality and the moral solidarity of man with his fellows. Kant is said to have separated *Moralität* from *Sittlichkeit*, and thus to have stereotyped in his system what is essentially a transitional moment in the history of morality. Social observance is prior to individual morality, and if the moral consciousness breaks away from its first inadequate realisation, it is only to reconstitute a more satisfying social order. The very existence of the State as a compulsive power is adduced as fatal to the principle "that the individuals, as self-conscious beings, are law and end to themselves *apart* from all relation to others. It implies that there is a positive relation of self-conscious beings to each other *prior* to the negative relation which they have as individual persons. But if this be admitted, the community of men with each other becomes the precondition of their independence in relation to each other; and this means that, in the individual person as such, the universal or rational life is not realised" (ii. 355). Kant's treatise on *Religion within the Limits of Mere Reason* connects itself most closely with his ethical works, and in his view of the church as a *Tugendbund*, or society for the promotion of goodness, there is a certain breaking-away from the attitude of moral isolation to which he elsewhere apparently condemns the individual in his endeavours after virtue. But much of his peculiar treatment of religious doctrines is traced by Prof. Caird to the subjectivity of his ethics.

In Kant's ethical treatises the dualism of the system appears as the opposition between desire or nature in man and reason or

man's true essence. In the *Critique of Judgment* we return to the theoretical consciousness and the relation of self-consciousness to the world as an objective system of things. Bearing Kant's ethical results in mind, we may say that the third *Critique* attempts to mediate between nature and freedom. It tries to indicate how the system of mechanical necessity may after all be fundamentally related to the free self-consciousness of which it seems the absolute antithesis. Prof. Caird's exposition and criticism, extending to nearly 150 pages, is of the highest value, and will be welcomed by students everywhere. It will be understood that he seeks to give an objective significance to principles which, as treated by Kant, are merely subjective or principles of reflexion. Thus the sense of beauty, in which we *feel* an adaptation of objects to our faculties which we cannot prove, is taken as a forefelt harmony of the world with the intelligence, and therefore as corresponding to the idea of an intuitive understanding. Attention may be specially drawn to the thoughtful pages in which Prof. Caird discusses Teleology as the problem which science hands over to philosophy. Finally he quotes with great effect against Kant's dualism his own view of the history of humanity in his *Idea for a Universal History in a Cosmopolitan Point of View*. In this little treatise Kant treats all the hardships to which nature exposes the human animal and also the selfish passions of man himself as the very instruments of his education as a moral being. But it is in this last capacity alone that man can be treated as the End which Nature has in view ; hence Nature seems in this to work out the ends of Freedom, and if so, it is no longer possible to uphold an absolute dualism between the two. Kant thus ends in "an Optimism which, as it were, absorbs and does away with an immediate Pessimism" (ii. 556).

It would be out of place, I think, as well as plainly impossible, to discuss what may be called the philosophic thesis of these volumes in a short notice dealing with them (and that insufficiently) in their relation to Kant. I hope no divergences of opinion which I have indicated on certain points may obscure the importance of Prof. Caird's book, which is in many ways the culmination of the long English endeavour to assimilate Kant. It is the result of a study of Kant, such as perhaps no Englishman will again undertake, and is in every way a thorough and masterly performance. If any regret mingles with the gratitude with which we receive from Prof. Caird this long labour of the spirit, it is that so much philosophical power should have been expended upon educating a consistent theory from Kant, when, if independently applied to the working out of a philosophical position, it might have appealed to a wider audience, and had a more direct influence upon contemporary thought. "At each step of Kant's work," says Prof. Caird, "there is the possibility of a twofold interpretation of it" (ii. 153). Now if that is so (and

I should be the first to endorse the statement) I confess to a doubt whether Kant can ever be made widely effective as a philosophical organon. So much labour has to be devoted to historical explanation, and to the qualification of every statement made, that the consistent theory detached from his writings is, in the end, adumbrated rather than fully worked out and established on its own merits. But there is a time for everything; and now that Prof. Caird has fully unburdened himself on Kant, let him give us that "complete treatise on Natural Theology" which he says in one place (ii. 128) would be required to develop the argument summarised in a few of his paragraphs. There are Gifford Lectureships enough in Scotland to furnish the appropriate occasion, and they could not be put to a better use.

ANDREW SETH.

- (1) *L'Art au point de vue sociologique*. (2) *Éducation et Hérité*. Étude sociologique. Par M. GUYAU. Paris: F. Alcan, 1889. Pp. xlvii, 387; xvi., 306.

In these two volumes we have the last fruit of an active but prematurely ended literary life. Guyau, so we learn from the excellent introduction to the first of the works by M. A. Fouillée, was but 33 years old when he died. Yet, by completing these volumes shortly before his death he has managed to leave behind him a fairly clear outline of a philosophical system. They form a needed complement to his earlier writings, more particularly *L'Irréligion de l'Avenir*, briefly noticed in MIND xii. 143. We are now able to see that he was for reconstituting religion, metaphysics, ethics and aesthetics, by introducing the sociological point of view, or, as M. Fouillée has it, by showing the sociological idea under each of these. As will at once be recognised, Guyau, in making this attempt, was on the foremost wave-crest of our new scientific thought. He had seized with avidity and assimilated the evolutionist's doctrine in its bearing on psychology and morals. He was fascinated with the biological speculation that the individual organisation is itself a society, made up of constituent cells, with their respective psychical concomitants. Life and social life thus came to him to mean one and the same thing. And since the social constitution becomes more distinct as the life ascends, it seemed to him to be the first business of the new philosophy to discover the social element in human thought, feeling and effort. In this way he was led to regard religion as being in its essence "a sociological phenomenon," an extension to the universe and its principle of those social relations which bind men together. Similarly with metaphysics, which, indeed, in Guyau's scheme, is hardly distinguishable from religion. And in these two posthumous volumes he carries the same conception into art, into morals—which last he had already discussed in a separate work, *Esquisse d'une Morale sans Obliga-*

tion ni Sanction—and into education. A brief examination of these last of his writings will prepare the way for an estimate of the value of Guyau's central conception.

The volume on Art is a most suggestive and delightful work, well meriting a careful perusal by every lover of art quite apart from its peculiar philosophic base. The author writes with knowledge, with critical judgment and with a certain ardour which is appropriate in the preacher of a new constructive gospel. And this message has its inspiring and even its solemnising character. Others before Guyau have pointed out the essentially social character of the æsthetic feelings. He goes much beyond this, and regards the whole function of art as a medium of transmitting, a means of socialising, human emotion. In the appreciation and enjoyment of art the individual loses himself, and at the same time most fully finds himself in the life universal. It is the mission of the artist to aid this social expansion and harmonising of feeling to the utmost, and thus art assumes a leading rôle in the processes of social evolution. Such a view, as might be expected, leads to a grave and dignified treatment of the subject. Art for art's sake, art for the artist, art for an artistic clique—such maxims are all equally erroneous. Art for society, for the furthering of social solidarity and the perfecting of the social life—these formulas would rather seem to represent the truth of the matter.

The interest of the book lies in the freshness and the ingenuity with which this idea is elaborated in detail. More particularly it is the author's conception of the social function of the artist, the social function of the critic and the essentially social content of all art which will best repay a careful examination.

The proposition that genius is power of sociability looks a little paradoxical at first to those who have studied the moods of the great. Guyau was too much a man of reading and culture not to recognise this, and he sets to work in a very energetic fashion to recommend his paradox. The poet, it is true, may not be in particularly close sympathy with existing society : none the less, as poet, he embodies a preternatural intensity of sympathy and sociability. And his poetic effort, his creation, has its impulse in the craving for a new world of living beings with whom as his own spiritual progeny he can fully sympathise. This calling into existence of a new world is not, however, a purely personal matter, subserving the artist's individual delectation and nothing else. It is, at the same time, a sociological phenomenon. The poet, by the very fact of his ideal creation, is social regenerator ; for to present the idea of a higher state of things is to excite an impulse towards the realisation of this. Here it is evident we have a view of the artist which brings him rather confusingly near the religious reformer or prophet and the philosophic moralist. In connexion with this presentment of the artist as regenerator of the community, Guyau says some striking and

instructive things as against M. Taine and others on the whole subject of the relations of the artist to his environment. If the great man is conditioned by his *milieu* he is much more than a mere reflector of its spirit and ideas. He is not explainable by heredity and education, but represents in its most striking and impressive form nature's tendency to "accidental" variation or modification of faculty. Thus he "modifies the social and intellectual environment, he is not himself the pure and simple product of the environment". And the influence of the environment becomes less and less marked as civilisation advances.

The contention that the critic is called on by his office to represent in a special way the graces of sociability may seem hardly less paradoxical than the other proposition just dealt with. Yet our author has much to say in support of it. He takes the view that all criticism is interpretative. "The ideal critic is the man to whom the work of art suggests the largest number of ideas and emotions, and who afterwards communicates these emotions to others." Corrective or condemnatory criticism has a very humble part assigned to it. Guyau seems to ignore the fact that the public is beset not only and not so much, perhaps, with men of genius as with persons of mediocre talent or something even less, and requires a good deal of warning-off if they are to find the road to the ennobling creations of true genius.

The new sociological conception of art is applied finally to the content and organisation of the work of art itself. The subject-matter of all art is life, and more particularly ideas, feelings and volitions. This view manifestly exalts the expressive as distinguished from the formal side of art. The object of the work of art is to excite sympathy with the artistically presented manifestations of life. Antipathy, by the way, is a quite subordinate effect in art, and is introduced merely to heighten the feeling of pity by contrast. Now life in itself is individuality, and we can only sympathise with individual personalities. At the same time the merely individual would have no permanent art-value. The characters of art, the heroes of the poet, are social, and appeal to us on their social side, whether, Guyau adds, rather naïvely, this sociality is seen in defending or in attacking society. The great characters of art, moreover, are not merely individual but human types, and when they represent the man of a particular epoch and society are properly social types. The double tendency in art indicated by Realism and Idealism is dealt with thoughtfully in the light of the general conception of art. Since art is to depict life, intense and varied, it must be realistic. And our author traces in an interesting way the development of the modern psychological and sociological romance as a movement which aims at embracing a larger area of reality. At the same time he is careful to separate himself from the contemporary school of present fiction, and his examination of the latest *soi-disant* scientific, experimental or physiological realism in literature is not the least capable part of his work.

The second volume is in some respects still more remarkable than the first. It is at once a treatise on sociology, ethics and pædagogics. It is doubtful whether among all the ardent evolutionists who have had their say on the moral and the educational question anyone has carried forward the new doctrine so boldly to its extreme logical consequences. Education, as Guyau conceives it, is essentially an instrument by which society maintains and furthers itself. "The entire system of education ought to be directed towards the maintenance and the progress of the race."

The process of education is instructively illustrated by the analogy of hypnotic suggestion. Such suggestion resembles instinct in that it sets up a consciousness of obligation, of necessity, a feeling in the patient's mind that he must do the thing suggested. "Suggestion is the transformation by which an organism more passive tends to bring itself into unison with an organism more active; this last dominates the first, and comes to rule its external movements, its volitions, its internal convictions." The application of this idea to morality is interesting and suggestive. Moral education, which is the branch of education first discussed, is viewed as a modification of instinct or inherited habit. Morality is a long way from being a pure product of education. And here Guyau attaches himself to Darwin and finds the genesis of a truly moral consciousness in the very fact of a sufficient complexity of life to supply a contention of impulses, and a persistence (*obsession*) of the more deeply-rooted instinct. "Duty is the consciousness of a certain internal power of a nature superior to all the other powers." It is a mistake to suppose, as is often done, that duty involves a feeling of necessity or constraint. The idea of duty emerges with the recognition by the individual within himself of a hierarchy of impulses and motives, the higher of which—idea-forces or rational motives—are seen by deliberative reflexion to be higher or better just because they represent a larger area of life. This larger area of life is that which the individual shares with others, that in which he lives as a social being. In this way the idea of duty, even when conceived as a pure result of individual evolution, has a social significance and universal validity. "Moral obligation is the force inherent in the idea which approaches most to that of the universal, to the idea of the normal for us and for all beings." It follows that English writers are wrong "to confound too absolutely morality and social instinct". At the same time our author has to admit that "if it is true that the individual might of itself have reached an embryonic moral obligation, it is equally true that moral obligation takes an altogether new aspect when considered from the social point of view". Under this aspect it resolves itself into "a profound feeling of solidarity". The identity of this social with the individual conception of morality is found in the

new scientific doctrine already referred to, that the individual himself is already a society, and that his conscious deliberation and preferential approval of the best represents the "intra-organic solidarity" among all the constituent cells. The discussion of morality and moral education is brought to a close by a careful reconsideration of the parts respectively assignable to heredity and education in the production of mind and character. The kind of *reductio ad absurdum* by which Guyau refutes the idea of Prof. Ribot and apparently of Mr. F. Galton, that the influence of education is at its minimum in the case of the great man, is among the most striking things in the volume.

Next to moral education Guyau takes up physical, and lastly, as the least important (the order of treatment is suggestive), intellectual education. Here he lends excellent support to Mr. Spencer, Mr. Grant Allen and others in their insistence on the sociological point of view in education. Although much of these chapters has a special bearing on the French system, it is full of instruction for all who concern themselves with the educational problem. Never, perhaps, has the fundamental error underlying our present excessively narrowed and intensified intellectual culture been more clearly demonstrated in the light of scientific principles than in this volume. To Guyau every individual is the temporary depository of a part of the force of the race, and our modern system of education instead of aiming at preserving this in its most efficient form seems rather bent on consuming it. The whole discussion is brought to a close with an admirable chapter on "The End of Evolution and Education," in which the author effectually lays the apprehension that human life will grow less conscious and more automatic as the race is evolved.

It will be seen from this sketch of Guyau's argument that his sociological enthusiasm enables him to deal freshly and fruitfully with the several points considered. If, however, one goes on to ask what is the whole philosophical value of his sociological conception, one soon recognises that it is inadequate for its purpose. This is most strikingly seen, perhaps, in the volume on Art. The "sociological point of view" is, no doubt, a very important one here, but it supplies no philosophic explanation of the distinctive attributes of beauty or of its artistic realisation. The function assigned to Art by Guyau is, as has already been suggested, too wide. Art is not the only agency by which emotion is sympathetically transmitted, nor is the effect of beauty fully and clearly defined by such a formula. Art has always had an intensely individual and even anti-social side, and much of the poetry of the world has had its root-impulse in a cultivated Egoism. Again, the sociological idea carries us but a little way in the determination of the content and form of Art. The disregard by Guyau of the sensual element in beauty, and the scanty recognition of its formal aspect, very well illustrate the inadequacy of the sociological point of view in æsthetics. Much the same ab-

abstract one-sidedness of conception meets us in the treatment of the ethical problem. Only that here, oddly enough, it is the sociological view of the individual that seems at fault. The *differentia* of moral feeling is not determined by saying that it is the outcome of a system of psychical cells that as organically united somehow desiderate harmony of relations. It presupposes the larger system of the community with its intensely conscious processes of colliding volition, and discrimination of the immense inequality between 'my' will and the collective will of others. And here it is not a little strange that Guyau's study of hypnotic suggestion with its resulting sense of compulsion did not lead him on the track of the idea that it is through contact with an extraneous will, a will representative of a whole system of wills, and therefore masterful, that each of us has learnt to say 'I ought' and 'I must'.

JAMES SULLY.

Die Lebensanschauungen der grossen Denker. Eine Entwicklungsgeschichte des Lebensproblems der Menschheit von Plato bis zur Gegenwart. Von RUDOLF EUCKEN, Professor in Jena. Leipzig: Veit & Co., 1890. Pp. viii., 496.

In former writings, several of which have been noticed in MIND, Prof. Eucken has put forward some distinctive views on the historical movement of philosophy in the past and on the currents of philosophic thought that are most powerful in the present. Hitherto his historical ideas have only found incidental expression in the separate treatment of particular thinkers. His view of present philosophical opinion has been developed independently in *Die Einheit des Geisteslebens in Bewusstsein und That der Menschheit* (see MIND xiii. 461). Referring readers to that work for a more detailed examination of philosophical thought in its bearing on life at the present day, he now gives a supplement to it in the form of a connected series of studies of the views of life that have received philosophical embodiment at the hands of the great thinkers who seem to him best to represent (or in so far as they seem to him to represent) their own ages. The result is that his view of present philosophy gains in concrete interest and that his historical theorising conveys a more distinct total impression.

Prof. Eucken's work might be called a history of European ideals with a view to the determination of the ideal for the present time. Setting out from the "national Greek" view of life, he begins with an account of the philosophies of Plato and Aristotle; Aristotle being, in his view, the most consistent interpreter of the purely Greek spirit, and Plato, though not so wholly Greek as Aristotle, still in important respects a typical representative of earlier as distinguished from later antiquity. Here is found already the problem of reconciling the claims of personal

and impersonal being, which remains central all through the development. Is human life, considered theoretically, simply a phase of non-personal being, or has it a relation to a transcendent personality? Ought it to be subordinated practically to an external process, or to be lived in accordance with an inward ideal? It is only later that these questions will be definitely put; but they are already seeking formulation. In the period of Greek freedom they had found a provisional answer in a view which, while tending to subordinate the individual man to an impersonal universe in the theoretical relation, and in the practical relation to a State that claimed to control his whole life in its own interests, yet did not entirely suppress personality. For the universe was then nearer to man through the absence of the trenchant modern distinction between mind and nature; and the individual Greek citizen spontaneously found satisfaction in the personal development made possible by the life of the city. "What for us moderns lies as an ultimate aim at a distance out of sight, is here boldly and largely grasped by the thinker in an anticipatory solution." When Greek freedom is lost, and at the same time the non-Hellenic world comes more into view, "man is thrown from possession into search". The problem, which now presents itself, of an individual life to be lived without aid from spontaneously harmonious relations to natural and political surroundings, is solved in different fashions by the philosophic schools of later antiquity. The Stoics raise the specifically ethical problem to independence. The Neo-Platonists arrive at a properly religious conception, and place the ideal wholly in an inward life. The Neo-Platonist "inwardness," however, remains strongly tinged by the "intellectualism" of antiquity. God and man are conceived under the form of intelligence more than of moral personality. In the meantime Christianity has appeared, with its promise of giving full satisfaction to the demand for a new ideal of personal life by bringing man, conceived as essentially a moral personality, into relation with God, conceived as the transcendent moral and personal cause of all things. The entrance of Christianity is thus "the greatest act of emancipation in the history of the world". That the character of an emancipation was so soon lost is to be explained by the internal decay of the ancient world, which had no longer the vigour to respond to the impulse towards a renewed moral life, but by the weight of its political organisation and the rigid intellectual form of its philosophies imposed on Christian life the dogmas and discipline of the Catholic Church. During the mediæval period the inward life was preserved by the mystics, and at the Reformation the time had at length come for a successful effort to revive the ideal of moral personality in its earlier Christian form and not under the Catholic form of a synthesis of Christian with Greek and Roman elements. Much, however, still remains to be done. The Reformers did

not get so near as they thought to primitive Christianity; and the restoration of the intellectualism of antiquity, proceeding from the Renaissance and resulting in the more thoroughgoing modern intellectualism, has necessitated a new effort at reconciliation of opposite theoretical views and practical ideals. Such a reconciliation, Prof. Eucken suggests (p. 154), may be found in the affirmation of an "inward and spiritual" miracle, together with the rejection of "physical" miracle. That revival of the life at once of Christianity and of classical antiquity which constitutes the deeper basis of the new world has now, however, to contend with the specifically and narrowly "modern" ideal of "dynamism," or the putting forth of the greatest possible activity in the movement of civilisation. From the two opposite philosophical points of view of "Naturalism" and "Intellectualism" (in a more special sense), the whole movement of things (human life included) is regarded either as a purely natural process or as a logical process of a cosmical reason. The individual thus comes to be thought of as having his reality and his true life as a mere link in an external process which, whether rational or only natural, is in either case impersonal. "Intellectualism" and "Naturalism," however, are in their application to the detail of life in irreconcilable opposition; and the elements of civilisation derived from classical culture and from Christianity, opposed as they are equally to the ideal of mere "expenditure of force," are, after all, the most genuinely modern. When confronted with Kant's doctrine of the moral personality of man—the most distinctively Christian of modern philosophical doctrines and the highest point reached by modern philosophy—the "dynamical" ideal of life breaks up. For a time like the present, with its conflicting tendencies, that ideal is, indeed, least of all adapted. The problem before us is one of selection and reconciliation of beliefs. In the final reconciliation, the convictions required by the moral personality must take the lead. An essential requirement for the personal moral ideal is dependence on a transcendent personality. The reconciliation of the classical and modern ideals with the Christian ideal must consist, therefore, in the carrying on of intellectual life and of the practical work of civilisation under the dominance of the personal religious life. This, in accordance with the principle of Protestantism, must be free, not constrained under a uniform external system.

The parts of Prof. Eucken's historical sketch that are likely to meet with acceptance or rejection according to the individual point of view of the reader being left aside, a brief criticism may here be made on what seems a fundamental inconsistency, or at least unreconciled juxtaposition, of views. Catholicism, Prof. Eucken holds, is entirely the result of a "synthesis" of classical and Christian elements, not at all of a subjugation of the classical world by a new force from without. Among the philosophies

that contributed to the formation of the Catholic system, Neo-Platonism appears to him exceptionally important: so much so that he interposes his account of Plotinus between accounts of the older Christian Fathers and of Augustine, and dismisses the later Neo-Platonists as of no significance, because non-Christian. Plotinus, we are told (p. 233), destroyed what he wished to preserve—that is, the ancient world of thought, and promoted what he wished to destroy—that is, Christianity. The “fixation,” the “standstill,” of the ecclesiastical system is explained as the last result of ancient ideas, and the system itself as their legitimate outcome; and the “life-weariness” that made the ancient world, instead of carrying Christianity forward, compel it into rigid limits, is found to have arrived at the extreme in the Neo-Platonists. Yet, after all this, Prof. Eucken insists, not only that it was from Neo-Platonist writings that the mystics of the Middle Age drew the inspiration by which they kept up the “internal life of feeling,” but also that emancipation from the mediæval system of thought at the Renaissance was attained in the philosophical field above all by a return to Neo-Platonism as a new starting-point (p. 256).

At once the most distinctive and the most noteworthy point of Prof. Eucken's book, as of its immediate predecessor, is his opposition to modern “dynamism”—which, at the same time, he describes not unsympathetically. Probably no one has better portrayed that materialistic mysticism of the ‘gospel of work’ with which we are all familiar. Its power to ally itself with either of two opposing systems of theoretical philosophy, and thus to take on the illusory appearance of a philosophy of life, is well shown; though, perhaps, Prof. Eucken looks upon it rather as the outcome of those systems than as a mood that attaches itself to them. In any case he brings forward good reasons for holding that it is only superficially modern. The subjectivity of modern philosophy must of itself prevent us from finding any permanent solution of the problems of life in action prior to theoretical insight or personal conviction.

That the “intellectualism” (in the more general sense) of modern philosophy is destined to take the subordinate place assigned to it in the determination of belief is not at all so certain. It is remarkable that Prof. Eucken himself makes the interesting concession that Kant's exclusive “moralism” has caused him, in theoretical philosophy, to fall short of the great thinkers of the seventeenth century, and that here, though not elsewhere, the nineteenth century has gone beyond him (p. 456). Prof. Eucken's own reconciliation of the demands of intellect and of the moral personality by the admission of the miraculous in the realm of mind but not of nature does not seem very hopeful. In his present work it is only suggested. If it were developed, there are obvious difficulties that it would have to meet which are not touched upon.

THOMAS WHITTAKER.

VI.—NEW BOOKS.

[These Notes (by various hands) do not exclude Critical Notices later on.]

The History of Human Marriage. Part I. "The Origin of Human Marriage." By EDWARD WESTERMARCK. Helsingfors, 1889. Pp. 158.

This first part of a work upon which the author has been for a considerable time engaged, and which he has now practically completed, is issued as an academical dissertation for doctor's degree and *venia docendi* at the University of Helsingfors. There is interest in noting that it has been written in English as a means of bringing the results of the author's research under the ken of a far wider circle of readers than he could have reached in the Swedish or Finnish speech; and by preference in English, because he found that in England he could most effectively study all work previously done upon his subject and best make quest for new information from missionaries now labouring among backward races over the world. In the body of the work, which, after the remarkable promise of the present first part, it may be hoped will soon appear in its completeness, the author will treat of "Courtship and the Sexual Selection of Man, the Conclusion of Human Marriage, with its various Forms and Duration". On the question of "Origin" thus far handled, he argues with great force against the hypothesis of Promiscuity as the stage through which Marriage in any of its forms (polyandry, polygyny, &c.) is supposed by the chief recent authorities to have been reached. This he does, not only by a critical survey of all the available evidence regarding early man or the savage races of the present day, but also by comparative study of the sexual relations obtaining among animals generally. Nor does he confine himself to merely anthropological and zoological data: the psychological element in human life also has its importance duly recognised. An inquirer who sets to work upon a perplexed sociological subject in so comprehensive and intelligent a spirit deserves cordial welcome. And as for Dr. Westermarck's English, it is seldom that he does not write as if to the manner born.

The Origin of Human Reason: Being an Examination of Recent Hypotheses concerning it. By ST. GEORGE MIVART, Ph.D., M.D., F.R.S. London: Kegan Paul, Trench & Co., 1889. Pp. 327.

A polemical supplement to the author's recent work *On Truth* (reviewed in MIND xiv. 420); the argument, in eight chapters ("Introductory," "Mental States and Processes," "Reason and Language," "Reason and Consciousness," "Reason and the Infant," "Reason and Divers Tongues," "Reason and Primitive Man," "Concluding Remarks"), being directed against Mr. Romanes's *Origin of Human Faculty*, but having also a more general reference. Mr. Mivart's contentions are summed up in the following two sentences taken from chapter vi. :—"Between the mere language of feeling and the sensuous cognition of brutes, on the one hand, and intellectual language and perception on the other, there remains an essential distinction of kind—that is, of origin. Whether we look to the psychogenesis of the individual or to that of the race, we alike see the full force of the distinction, and recognise, in harmony therewith, the entire absence of any evidence of transition from the emotional sign-making power of the brute to the faculty of

conceptual expression possessed by man." The discussion, conducted, as it is, from the point of view of "the School," though appealing to outsiders, has a philosophic interest of its own; showing how the Scholastic positions are maintained in detail against the Darwinian view of human origins. Any objection that may be made to the position, taken literally, that man's nature, being intellectual, "absolutely differs in kind from that of the highest brute, from the first moment of his existence" (p. 20), is met by the qualification, "in potentiality". The absolute distinction "is between a nature which can, and a nature which cannot, possess conceptual power" (p. 225). Man everywhere has and always had conceptual power in act or in potentiality. No brute "can" have this power. This is a difference of kind; and a real difference of kind "cannot" be evolved.

Physiognomy and Expression. By PAOLO MANTEGAZZA, Director of the National Museum of Anthropology, Florence, &c. ("The Contemporary Science Series.") London: Walter Scott, [1890]. Pp. x., 827.

With one new added chapter on "The Physiognomy of Gestures and the Expression of Clothes," this is a translation of a book that, in its French dress, was noticed in MIND x. 145. The fanciful illustrations of the French edition are not reproduced. It reads in English very well; and no more lively supplement to Darwin's classical work could be desired. It is, at the same time, a book of original observation. The author's Italian *positivity* (to turn an old word to a present-day use) appears in the remark of his new chapter: "In biology and in psychology (which is the same thing)," &c. (Occasion may here be taken to correct the misprint of "Indian" for "Italian" in one sentence of the earlier notice in MIND.)

Elements of Logic as a Science of Propositions. By E. E. CONSTANCE JONES, Lecturer in Moral Sciences, Girton College, Cambridge. Edinburgh: T. & T. Clark, 1890. Pp. xv., 208.

This book aims at a unification and generalisation of Logic, treating it as non-psychological, as the Science of Propositions, and, therefore, of universal application. The book is divided into two parts: i. treating of the Import of Propositions (including a consideration of Terms); and ii. dealing with the Relations of Propositions, under which head are included Immediate and Mediate Inferences. A new classification of Fallacies is put forward, and solutions of certain logical difficulties are suggested—*e.g.*, the place of adjectives in a classification of Terms, the specific characteristic of *a fortiori* arguments, the place and meaning of Quantification of the Predicate, the Ground of Induction, and the meaning of the Laws of Thought. A complete classification of Terms, Propositions and Inferences is attempted.

JOHANNIS WYCLIF *Tractatus de Apostasia.* Now first edited from the Vienna MSS. 1848 and 8985. By MICHAEL HENRY DZIEWICKI. London: Published for the Wyclif Society by Trübner & Co., 1889. Pp. xxxvi., 259.

This very careful edition of Wyclif's tract *De Apostasia* is preceded by an introduction describing the MSS. and analysing the argument. The tract consists, in great part, of a discussion of the doctrine of Transubstantiation; but connected with the theological argument there are some points of philosophical interest. Wyclif, as is known from his philosophical writings, was a Realist. The editor, accordingly, prefaces

his account of the polemic against Nominalism in the *De Apostasia* by a brief synopsis of the doctrine of the Scholastic Realists and Ultra-Realists (pp. xix.-xxi.). Anticipations of some of Descartes' arguments (relative to the Sacrament) in the *Réponses aux objections de M. Arnauld* are found in Wyclif (p. xvi.). The Thomistic doctrine is very clearly stated (p. xxviii.). Points of general interest are not neglected; such as Wyclif's socialistic positions (pp. xii., xxvii.) and his revolutionary attitude as regards obedience to the authority of the Church (pp. x., xxiv.).

Fabian Essays in Socialism. By G. BERNARD SHAW, SIDNEY WEBB, WILLIAM CLARKE, SYDNEY OLIVIER, ANNIE BESANT, GRAHAM WALLAS and HUBERT BLAND. Edited by G. BERNARD SHAW. London: The Fabian Society, 1889. Pp. vii., 288.

These essays form collectively an interesting expression of one type of contemporary thinking and feeling. "The writers are all Social Democrats, with a common conviction of the necessity of vesting the organisation of industry and the material of production in a State identified with the whole people by complete Democracy." The ideal, to the realisation of which by a gradual process of evolution the writers look forward, is compulsory work for all under the direction of municipalities co-ordinated by a central government. According to the theoretical view that gets itself expressed, "the world moves from system, through disorder, back again to system". "System" is represented by the Middle Ages, when "every man had his class, and every class its duties"; "disorder" by the "competitive individualism" of modern times. Socialism would once more systematise society, but would substitute democratic equality for the social hierarchy of the Middle Age. All the same, "the oldest socialistic institution of considerable importance and extent" is the Catholic Church; and when society is completely reorganised on socialistic lines and the present "anarchy of opinion" has disappeared, there may again be public teachers of a universally accepted doctrine. Society will then be welded into one class, with "a public opinion of inconceivable weight". For the production of individual types, personal development is to be superseded by "social organisation" (pp. 57-8). "Or rather, the perfect and fitting development of each individual is not necessarily the utmost and highest cultivation of his own personalty, but the filling, in the best possible way, of his humble function in the great social machine". The fullest liberty and the fullest equality being incompatible, a portion of liberty must be sacrificed to equality of comfort (pp. 59-61). The writers do not profess to agree entirely with one another; but, as may be seen, a pretty consistent doctrine can be put together from their essays.

The Promotion of General Happiness. A Utilitarian Essay. By MICHAEL MACMILLAN, B.A., Oxon., Fellow of the Bombay University, and Professor of Logic and Moral Philosophy at Elphinstone College, Bombay. London: Swan Sonnenschein & Co., 1890. Pp. vi., 186.

An unprejudiced examination of the effects of various circumstances on the "general happiness" so far as this can be estimated by summation. The subjects discussed are "Knowledge and Education," "Inventive Knowledge," "Medical Knowledge," "Aid to Natural Selection," "Amusements," "Changes in Law and Custom," "Vegetarianism and Total Abstinence," "The Moral Virtues and Religion". Chapter viii., on the anti-felicitic efforts of some Oriental institutions, is interesting from the author's residence in India.

Etude sur quelques Paralysies d'origine psychique. Essai de Psychologie Expérimentale. Par A. GRAFÉ, Professeur à l'Athénée royal de Liège. Bruxelles : F. Hayez, 1889. Pp. 122.

The special aim of this study is to determine the physiological cause of a kind of paralysis in which the patients find it impossible to move one or other of their limbs unless they can follow the movements of the limb with the eye. After giving a careful account of all the recorded cases the author goes on to attempt first a physiological explanation. The physiological explanation, he finds, can only be a certain derangement of the physical concomitants of associated sensations. Before the action can take place, the patient requires a particular order of sensations different from the usual one; and this requirement may be the consequence of some abnormal association. This explanation, however, is too general. The problem is to determine why in this particular case a particular order and no other is required. For a definite solution, we must go to psychology. The author's psychological explanation depends on a theory of which the central point is that ability to bring about changes in the external world is in every case the result of a certain grouping of images of the muscular sense. In a volition there are representations of the end and of the means. The "medial representations" are always motor images. Education of the will carries with it reduction of the medial representations to a low degree of consciousness. Selection of the means in habitual as in instinctive actions takes place entirely without our knowledge. The unconsciousness in which the medial representations are involved, however, is never absolute. They merely pass into a kind of "penumbra" of consciousness. If, then, in the form of paralysis under investigation, we suppose that there is a "weakening" of the sub-conscious "medial representations," we shall be able to explain why, although the end is distinctly represented, the appropriate movements are not produced. The reason is that the intensity of the medial representations is no longer sufficient to bring about the series of movements that leads to the desired result. Naturally the patient cannot discover this for himself; for under ordinary circumstances he is not aware of the presence of the medial representations, and consequently cannot directly become aware of their absence. The explanation, however, is confirmed by many other pathological facts (cited by the author at length); and the verification is supplied in the particular case by the manner in which the movements cease either immediately or almost immediately with suppression of "visual control". That visual control should make action possible follows at once from what has been said of the function of the medial representations. For when these links in the ideal process of action are weakened, what is required is to revive them; and they are revived by the detailed apprehension of every step in the external process. Revival, under the particular circumstances of the patients experimented on—who as a rule suffer from anæsthesia of the limbs involved—can accordingly be obtained best through the visual sense. When it can be obtained otherwise, the power of movement is recovered just as when it is made possible by "visual control".

J. PUTSAGE. *La Foi, la Force et la Raison.* Bruxelles: Imprimerie Veuve Monnom, 1890. Pp. 60.

M. Putsage here gives in brief form a statement of the philosophical doctrine set forth in his *Etudes de Science réelle* (MIND xiv. 298) along with a more definite view of the reorganisation of society to which he looks

forward. The pamphlet, like the larger book, is worth reading, both for the interest of some of the author's philosophical positions and for the social aspiration that finds utterance in it. His doctrine might be described as a new Averroism, if it were not that for the one active Intellect he substitutes (apparently) a multitude of "immaterial individualities," from the union of which with different material organisms human personalities result. Individuality (but not personality) is eternal; and "sensibility" is the same in all men so far as they are rational. An eternal impersonal justice is supreme in the universe, and is realised in the succession of lives of each individual soul. As soon as the existence of this impersonal moral order is generally recognised, the society that ought to be will actually exist. Hitherto only two kinds of social order have existed—the theocratic order based on "divine right" and maintained by the prohibition of free inquiry into its grounds, and the political order based on naked force. The permanent social order will be founded on a common idea of right (which will be in effect a religion), and no sovereignty will be recognised save that of Reason.

La Philosophie de Lamennais. Par PAUL JANET, Membre de l'Institut, &c. Paris: F. Alcan, 1890. Pp. 157.

An interesting study, in three chapters, of the mental history of one whom the author goes rather far in describing as "un personnage unique dans notre siècle," but who certainly in a peculiarly forceful and dramatic manner affords the spectacle of a complete revolution of spirit at a time of life when ideas and purposes are apt to be fixed beyond the possibility of radical change. The study is called forth by the recent publication of a third volume of Lamennais' correspondence, following now upon two others which had been issued by direction of the strenuous man himself (d. 1854). He is viewed successively as the theologian and theocrat of the *Essai sur l'indifférence en matière de religion* (1817); as the political liberal of the *Progrès de la révolution* (1829) and of the short-lived newspaper *l'Avenir* (from 1830), who passed, after the papal condemnation (1838), into the revolutionary seer of the *Paroles d'un croyant* (1834) and later pieces of less powerful rhetoric; finally as the speculative thinker of the *Esquisse de philosophie* (1841-6), in which he essayed an intellectual construction not less systematic and far more essentially philosophical than the contemporaneous achievement of Comte. Under the two aspects of metaphysician and æsthetician, Prof. Janet brings the Lamennais of the *Esquisse* into striking and instructive relation with other philosophers of the century whose speculative work has not, like his, been cast into the shade by life-deeds of a more stirring cast. Interesting particulars are given at the beginning of the little volume regarding the circumstances in which Lamennais took his first communion as late as at the age of 22, and clerical orders not till he was 34. They reveal a state of mind which, while helping to explain the tense ecclesiasticism of the *Essai sur l'indifférence* published within three years of his ordination, also makes less surprising the *volte-face* of his mature age.

Essai sur les Données immédiates de la Conscience. Par HENRI BERGSON, Ancien élève de l'Ecole normale supérieure, Professeur de Philosophie au Collège Rollin, Docteur ès lettres. Paris: F. Alcan, 1889. Pp. viii., 188.

By an investigation of the distinction between the physical point of view and the point of view of the immediate consciousness of mental states, the author seeks to establish a conception of free-will. The error

of determinists and indeterminists alike, he contends, is in viewing consciousness under forms derived from the external world, that is, under spatial forms. Thus viewed, it inevitably appears as an object of scientific law, and therefore as determined. Liberty, accordingly, is denied not only by determinists, but, unconsciously, by indeterminists also; since, by defining it, they bring it under objective determination. Not till the interpretation of consciousness is purified of all objective reference—as physical science has been purified of all subjective reference—does the difficulty disappear. In order to show how this purification can be effected, the author studies in the preliminary chapters (1) “the intensity of psychological states,” and (2) “the multiplicity of states of consciousness: the idea of duration”; going on afterwards to treat of (8) “the organisation of states of consciousness: the idea of liberty”. First, he finds that the idea of intensity, in its psychological application, ought to be cleared of all quantitative reference; magnitude being essentially objective. Secondly, “duration within us” ought to be cleared of all reference to number; for the moments of internal duration are not external to one another. Without us there is no “succession”; within us there is no “reciprocal externality”. Our consciousness puts the idea of succession into things; things, with their spatial order, cause us to externalise in relation to one another the successive moments of our internal duration. Objective science has succeeded in dissociating the elements of extension and duration for the benefit of extension; psychology must attempt it for the benefit of duration. The dissociation once effected, it is seen that while space is a “homogeneous medium” duration is essentially heterogeneous. “Time,” conceived as a homogeneous internal medium, is not pure duration, but duration brought under the form of extension and conceived as filled with distinct and numerable successive states. In reality there are no distinct successive states of consciousness recurring in their identity at successive intervals. All interpenetrate one another; and since, so far as they are distinguishable, they are unique in kind, psychical states never reproduce themselves. They cannot, therefore, reproduce their “effects”. The relation of a state to that from which it proceeds cannot be expressed by a law. The very idea of necessary determination here loses all meaning. Thus, to become free, we have only to recognise our freedom. We recognise our freedom in those moments when we turn from the objective attitude and seize upon ourselves. “To act freely is to resume consciousness of oneself, to replace oneself in pure duration.”

Dott. LUIGI CREDARO, Prof. di filosofia al R. Liceo Umberto I. *Lo Scetticismo degli Accademici*. Parte Prima. Le fonti—La storia esterna—La dottrina fondamentale. Roma: G. Balbi, 1889. Pp. 262.

This preliminary part of a work on the New Academy is occupied chiefly with an examination of the authorities for its history and doctrine (especially Cicero) and with a statement of the sceptical positions of the Academics. Afterwards the author will go on to a statement of their positive doctrine of “Probabilism,” and will investigate their relations to the Pyrrhonists and the gradual going over of the school to an eclectic dogmatism. The sceptical Academy, he finds in his present volume, “took the first step towards modern Criticism”. Carneades was a precursor of modern ideas in religious philosophy; having been the first to insist on the distinction between science and faith.

Das Problem der Materie in der griechischen Philosophie. Eine historisch-kritische Untersuchung von CLEMENS BAUMKER. Münster: Aschendorffsche Buchhandlung, 1890. Pp. xv., 436.

This History of the Theories of Matter in Greek Philosophy seems to have all the qualities that confer classical rank on a work of the kind. What is especially noteworthy in it is the exactitude of historical discrimination among the different periods of antiquity with their differences of outlook, and the resulting clearness of the general view of development that is given. The author's clearness of view is made manifest in the opening pages by the prominence he gives to the distinction between "Idealism" in modern and in ancient philosophy. Idealism in the theory of knowledge, or "subjective idealism," he points out, is foreign to the whole of antiquity. And, if the term "idealism" is not to lose all determinate sense—as it is in danger of doing when it is employed now with an epistemological and now with an ethical meaning—only those systems must be called idealistic that resolve the object-world into a "content of consciousness". That which is often called Idealism in ancient philosophy ought rather to be called "Concept-Realism" or "Notismenism". This, accordingly, is the name the author consistently gives to the Platonic "ideal theory" and those that approximate to it. The "Realism" of ancient philosophy having thus been brought into view, he has no difficulty in showing that matter, for all ancient thinkers, is something "objective". Though conceived as objective, however, it is not necessarily conceived as corporeal; and while by more than one set of thinkers it is viewed as the only reality, by others it has the lowest possible degree of reality assigned to it. Parmenides even has no theory of matter, in the ancient sense, at all. For the ancient "problem of matter," stated in its most general form, is, 'What is the substratum of change in the corporeal world?' and for Parmenides change is an illusion. All the same, neither Parmenides nor any of his successors arrived at "subjective idealism". In the pre-Socratic period—treated by the author in the first of his five sections ("The Pre-Socratics," "Plato," "Aristotle," "Epicureans and Stoics," "Neo-Platonism and its Precursors")—most thinkers have a theory of matter, and we may find here the starting-points, at least, for all later theories. Not till Aristotle, however, is the problem definitely and distinctly stated. To the question (for example) whether the 'numbers' of the Pythagoreans are corporeal or incorporeal, it has to be answered that the distinction between the corporeal and the incorporeal was not drawn by the Pythagoreans any more than by the other "Nature-philosophers". In the Pythagorean doctrine of matter, however, when it is disengaged, we already find dualism and the germ of concept-realism. The Eleatic metaphysic of 'being,' though not properly a theory of matter, gave the impulse to the theories developed by Anaxagoras, Empedocles and the Atomists. The Atomists (whose theory was directly prepared for by Empedocles) seek, like the Eleatics, for an unchanging 'being,' but with a view to the rational explanation of physical change, which the Eleatics had been content to regard as a subject of mere "opinion". Hence their transformation of 'being' into 'beings,' and their theories of the "mixture" of elements. The Platonic 'matter' (by which is to be understood almost exclusively the 'primary matter' of the *Timæus*) the author finds (with others) to be empty—but objective—space. Here he skilfully distinguishes the actual doctrine of Plato from later interpretations of it, and replies very convincingly to all that has been urged against the view set forth. The Aristotelian conception of matter, he next goes on to show, had its origin in a conscious effort to find a rational explanation of the process of 'becoming'

in the corporeal world. Aristotle's matter, like Plato's, is incorporeal though objective; but for extension as an empty recipient of forms is substituted the bare 'possibility' of being and not-being. The great defect of Plato's view—its identification of mathematical with physical body—was recognised and pointed out by Aristotle. As employed in actual explanation, his own theory tends to pass into the Stoical theory of matter as corporeal substance without quality; but, theoretically, it always remains bare 'possibility,' opposed to the 'form' which (as with Plato) alone gives being. The post-Aristotelian schools, though dependent for their starting-points on what has gone before, are essentially original in their central doctrines. Thus the Stoical theory of matter, while in detail it is a combination of the Aristotelian theory with the Ionic nature-philosophy (especially that of Heraclitus) is original in its explicit materialism. The 'efficient' and 'formal' causes of Aristotle are made by the Stoics to coincide; so that the only opposition that remains for them is that of 'matter' and 'force'. This opposition they resolve into the unity of their monistic system by viewing the shaping principle as not mere motion in matter, but a special kind of matter; the material principle itself being indeterminate body, which can thus be viewed as prior to the active and passive elements into which it is determined. The Epicurean atomism is expounded by the author with not less care than the Stoical doctrine of the continuity of matter. Several points in which the scientific explanations of Epicurus are an advance on those of Democritus are indicated. Combination of older points of view, and at the same time originality in the central thought, are again found in the Neo-Platonists. A special point dwelt on here is the development by the Neo-Platonists and their precursors of the conception of "intelligible matter," or matter within the world of ideas, which appeared in Plato's later speculations as reported by Aristotle. Common to Plato and the Neo-Platonists is the tendency to reduce matter to the lowest possible degree of reality, and on the other side the acceptance of it, whatever negations are accumulated in its definition, as objectively given. To Plotinus and Proclus, idealism in the modern sense is as foreign as to the whole of preceding antiquity. As may be seen, the author lets history itself, as far as is possible, do the work of criticism. This has been his aim all through; his only deviations from the purely historical mode of treatment being a brief comparison of ancient with modern atomism and a criticism of the Aristotelian doctrine of matter.

Grundlinien einer allgemeinen Psychophysiologie. Von A. HERZEN (Lausanne). Leipzig: Ernst Günther's Verlag, 1899. Pp. 150.

Prof. Herzen's present work is intended distinctively as the "Outlines of a general Psychophysics". The greater part of it is devoted to furnishing experimental and deductive arguments for the author's monism. According to his philosophical doctrine, "matter and force are in nature one and the same principle," which, unknown in itself, is ultimately the ground of all explanation; psychical activity being "a molecular motion of nerve-elements". A few pages are given to the exposition of the "physical law of consciousness," already set forth in Italian and French (see *MIND* iv. 268 and xii. 145). Perhaps this law would be better named—the law of "the physical conditions of consciousness". (This is, indeed, the title of Prof. Herzen's French exposition.) Under that name it would be free from the materialistic implication which the author admits to be after all hypothetical. Brought to its purely scientific form, it seems well entitled to take rank as a definitive law.

Das psychologische Problem in der Hamlet-Tragödie. Von der philosophischen Fakultät der Universität Leipzig approbierte Promotionschrift. Von Dr. HERMANN TÜRK. Leipzig-Reudnitz : M. Hoffmann, 1890. Pp. 84.

A former study of the author's on *Hamlet* was noticed in MIND xiv. 155. In the present more detailed study he first devotes some space to criticism of earlier views of the character of Hamlet—at the same time stating his own view—and then goes on to a "systematic analysis". The view against which his criticism is chiefly directed is that which regards Hamlet as a weak person disqualified for action by reflectiveness and moral scrupulosity. Since its statement by Goethe in *Wilhelm Meister* (though Goethe, as Dr. Türk points out, afterwards saw its inadequacy), this view has become traditional in German criticism—and, indeed, has had scarcely less influence on English criticism. It is here followed into all its modifications, and attacked with great effectiveness by Dr. Türk. In the statement of his own view he formerly described Hamlet's idiosyncrasy by the word "genius," and then sought to characterise genius in general. He now, without using the word, makes Hamlet's character the object of an independent psychological study. His detailed analysis is very instructive, and frequently, if not always, seems to hit the point exactly.

Beispiele zur Logik aus der Mathematik u. Physik : im Anschlusse an F. A. Trendelenburg's *Elementa logices Aristoteles* zusammengestellt von Prof. P. FREYER, Dr. Phil. Berlin : W. Weber, 1889. Pp. 56.

This collection of Logical Examples appears to have grown out of a contribution to a Gymnasium-program as far back as 1872. It is calculated for youths who, having reached the closing stage of the gymnasial course at which Logic is expressly taught, have also advanced far enough in Mathematics and Physics to be able to see the applications of logical principles which these sciences, more clearly than any others, exemplify. The author's idea of bringing the two kinds of discipline (logical and scientific) into such direct relation is excellent; and, in following the lines of Trendelenburg's *Elementa* (with the supplementary *Erläuterungen*), he also does the best that could be for a class of learners whose previous training has been mainly literary. The tract is warmly to be commended to teachers of Logic and to all who wish to see it made (as it easily might be) not only useful but attractive to the young.

Einleitung in die christliche Ethik. Von HERMANN WEISS, Dr. und ord. Professor der Theologie in Tübingen. Freiburg i. B. : J. C. B. Mohr (Paul Siebeck), 1889. Pp. viii., 240.

This *Introduction to Christian Ethics*—divided into three chapters: "Morality and Doctrine of Morals" (pp. 1-56); "The Christian idea of the good" (pp. 56-185); "Anthropological" (pp. 186-280)—is notable for its philosophical spirit and for its clear demarcation of the problem of "theological ethics". In distinction from philosophical ethics, the author points out, theological ethics has its foundation in belief in a definite revelation. Such belief, however it is historically conditioned, is at the same time essentially "subjective". It supposes a particular kind of personal experience, and can never be strictly demonstrable. On the other hand, though not to be identified with the morality developed independently of religious faith, Christian morality, in so far as it has pre-conditions in general human experience, comes in several ways under philosophical determination. The expositor of a system of Christian ethics has to choose, for example, between the two opposite

philosophical points of view of "Empiricism" and "Idealism". The choice, according to the author, can only be for "Idealism"—by which he means the position that "the ethical" does not take its origin wholly from "natural" human experience, but in its essential part is derived from a "transcendent" sphere. This realm higher than the empirical is first found in the "ideal nature" of man; in his "rational or spiritual" side. It takes form in the consciousness of an absolute moral law to be realised by means of freedom. The moral law and the freedom of the personality are *a priori*, because originally constitutive and normative, elements of the human mind: but they are not "innate". The *a priori* moral consciousness has been gradually formed in the process of history, and would remain abstract and empty if it did not continually appropriate from concrete experience insight into the realm of "ends" and "goods". Thus there is also an "empirical moment" in the formation of the moral consciousness. The ideal moment is not to be regarded as something externally added to the empirical moment, but as "immanent in the personality". From the religious point of view, this immanence must be held to be the result of a revelation, and the moral law to be a command of God.

Beiträge zur experimentellen Psychologie. Von HUGO MÜNSTERBERG. Heft 8. Freiburg i. B.: J. C. B. Mohr (P. Siebeck), 1890. Pp. 122.

The third part of Dr. Münsterberg's *Beiträge* (see above, p. 284), just issued, is devoted to the single topic of a "New Founding of Psychophysic"—Psychophysic this time understood in the more special sense of the relation between Sensation and Stimulus, which, from the time of Weber and Fechner, has engaged the efforts of so many experimentalists. Detailed notice will follow.

The following NEW EDITIONS have been received:—

Scottish Philosophy: A Comparison of the Scottish and German Answers to Hume. By ANDREW SETH, M.A., &c. Second Edition. Edinburgh and London: William Blackwood & Sons, 1890. Pp. xiv., 222. [The author has made some alterations in this reprint of his first course of "Balfour Philosophical Lectures," which add some four pages in all to the original volume that was reviewed in *MIND* xi. 267. The new insertions occur chiefly in the third lecture, upon the topic of the alleged impossibility of giving any *philosophical*—however it be with psychological—explanation of our knowledge of extension in terms of unrelated sensation, *i.e.*, of sense-experience which is not already fully constituted percept. Naturally, the author has not been slow to take advantage of the declarations which, as psychologists, Mr. James Ward and Prof. James have made of recent years as to irreducibility of the essential feature of extension; but it may still be doubted whether he rightly claims similar allowance from Prof. Wundt, by speaking of Wundt's assertion of inherent qualitative differences of sensation under the objective designation of "local colouring"—unless, indeed, the word "potential," which, on p. 98, he does not omit before this designation, is meant to suggest that originally and in themselves the differences are intensive only. In any case, Prof. Seth's own position is now stated with distincter articulation than before.]

The Popular Works of JOHANN GOTTLIEB FICHTE. Translated from the German by WILLIAM SMITH, LL.D. With a Memoir of the Author. Fourth Edition, in Two Volumes. Vol. I. "Memoir." "The Vocation

of the Scholar." "The Nature of the Scholar." "The Vocation of Man." Vol. II. "The Characteristics of the Present Age." "The Way towards the Blessed Life, or, The Doctrine of Religion." "Outlines of the Doctrine of Knowledge." London: Trübner & Co., 1889. Pp. 478; ix., 517. [These translations of Fichte's "popular philosophical works" have been once more subjected to a careful revision. First published 1845-9, they have, with the included "Memoir" (i. 1-145), lost nothing of their original interest and value, in spite of all that has later been done for the exposition of German thought to English readers. The present definitive edition is dedicated to the memory of Carlyle.]

The Psychology of Attention. By TH. RIBOT. Authorised Translation. Chicago: The Open Court Publishing Co., 1890. Pp. 121. [The French original of this interesting monograph was reviewed in MIND xiv. 278. The translation appears to be done with competence and care. The *Open Court*, both by its translations and otherwise, has now for a considerable time been doing no small work of general philosophic enlightenment.]

Elemente der Psychophysik. Von GUSTAV THEODOR FECHNER. Zweite unveränderte Auflage. 2 Theile. Leipzig: Breitkopf u. Härtel, 1889. Pp. xiii., 846; xii., 571. [The best monument that could be reared to Fechner's memory was a reprint of his path-breaking work of 1860, and this Prof. Wundt (helped by Dr. O. Külpe) has here worthily effected; contenting himself, as was meet in the case of a classic, with only such additions in footnotes as would bring the statements of the *Elemente* into relation with all the later psychophysical work which Fechner went on publishing till the close of his prolonged life. To vol. i. is also added a complete catalogue of all his (exceptionally) varied productions. If an index, and especially a full enough one, had farther been given at the end of vol. ii., nothing would have been left to desire. Looking through the volumes, which are now so fortunately rendered again obtainable, one is struck by the amount and variety of matter of general psychological interest which Fechner was able to include with the severer discussions in which he laid the foundations of a doctrine that has stimulated so much later inquiry.]

RECEIVED also :—

- J. Lubbock, *Prehistoric Times* (5th ed.), Williams & Norgate, pp. 687.
 Mary Boole, *Logic taught by Love*, Lond., F. Edwards, pp. xii., 176.
 A. N. Pearson, *A Search for Knowledge*, Melbourne, Melville & Co., pp. 145.
 S. Icard, *La Femme pendant la période menstruelle*, Paris, F. Alcan, pp. 288.
 J. Delboeuf, *Magnétiseurs et Médecins*, Paris, F. Alcan, pp. 116.
 P. Ceretti, *Saggio circa la Ragione logica*, ii., Torino, Un. Tip.-Ed., pp. 1224.
 A. Biese, *Das Metaphorische in der dichterischen Phantasie*, Berlin, A. Haack, pp. 85.
 H. Schmidkunz, *Ueber die Abstraction, & Analytische u. synthetische Phantasie*, Halle-Saale, C. E. M. Pfeffer (R. Stricker), pp. 48; vii., 108.
 E. Dreher, *Die Physiologie der Tonkunst*, C. E. M. Pfeffer, pp. xi., 122.
 F. Marbach, *Die Psychologie des Firmianus Lactantius*, C. E. M. Pfeffer, pp. 80.
 W. Windelband, *Geschichte der Philosophie*, 1te Lief., Freib. i. B., J. C. B. Mohr (P. Siebeck), pp. 128.
 E. Rohde, *Psyche*, J. C. B. Mohr (P. Siebeck), pp. 294.
 Dambor, *Das Heil*, Leip., H. Hartung, pp. viii., 184.
 J. Wolff, *Das Bewusstsein u. sein Object*, Berl., Mayer u. Müller, pp. xv., 261.

VII.—FOREIGN PERIODICALS.

AMERICAN JOURNAL OF PSYCHOLOGY.--Vol. ii, No. 4. C. L. Edwards—Folk-lore of Bahama Negroes. C. L. Franklin—On some characteristics of Symbolic Logic. W. H. Burnham—Memory, historically and experimentally considered (iv.). [Closes the historical portion of the study. Recent theories and the experiments of Ebbinghaus and others are discussed. Physiological theories of memory are classified into those in which it is supposed that memory depends upon: (1) a *movement* persisting in the brain, (2) a *trace* or *residuum*, (8) a *disposition*. A useful bibliography of 8 pp. is added.] Psychological Literature. (Nervous System; Experimental; Hypnotism; Miscellaneous). Notes.

REVUE PHILOSOPHIQUE.—An. xv., No. 1. C. Secrétan—L'économie et la philosophie. [In opposition to the German "historico-ethical" school, the author insists on the deductive character of Political Economy—or, as he prefers to say, Economics—and its dependence on psychological principles. The place of economic science, he finds, is among the moral or practical sciences; the three "ethical" sciences, in the most general sense, being Economics, Morality and Law. The sphere of economic science is "interest" as distinguished from benevolence and duty. Within economics in general, the name "political economy" is rightly applied to the branch that deals with the problem of collective wealth, its augmentation and distribution. The application of the scientific theory to practical ends constitutes an "art"; descriptions of phenomena, or statistics, constitute the "erudition" of the subject. Political Economy, accordingly, has three branches, *viz.*, "erudition," "theory," "art."] B. Bourdon—La certitude. ["Certitude, under its simplest form, is constituted by two intense images . . . associated or dissociated strongly." Strong association is produced especially by rapid suggestion of similar ideas; and rapidity of suggestion is produced by repetition of like images.] A. Naville—Remarques sur l'induction dans les sciences physiques. [The "first principle of induction" is "a rational principle of absolute certitude"; being obtainable analytically from the logical law of identity. Its formula is that the collocation of causes being the same the collocation of effects must be the same. For this formula to be of any service in actual scientific induction, however, we have to add the beliefs (1) that time by itself is not a cause, (2) that space by itself is not a cause, (3) that there are substances of similar nature to the substance experimented on. These beliefs are all involved in the "second principle of induction," which, stated generally, is that identities as well as differences exist among phenomena.] Notes, &c. (Lombroso et Ottolenghi—L'image psychique et l'acuité visuelle dans l'hypnotisme). Analyses, &c. Rev. des Périod. No. 2. A. Fouillée—L'évolutionnisme des idées-forces (i.). [The author's conception of "idea-forces" is taken as the principle of a "monistic, but immanent and experimental," Evolutionism. In this first article, the "idea-force" is opposed to the "idea-reflexion," or mere representation. All states of consciousness may be called "ideas"; and ideas may be called forces in so far as they have an element of activity or efficiency. Physical science can abstract from "force," but psychology cannot; and "psychical laws are more radical than physical laws". It is these laws, and not mere physical laws of movement, that

must furnish the ground of a philosophical theory of evolution. The efficient or active element in the idea is constituted by "appetition, pleasure and pain," which cannot be explained from the representative element in the idea, but is equally primitive with this.] A. Binet—*La concurrence des états psychologiques*. [A discussion of the mutual conflict of psychical states, not unconnected with the author's article in the January No. of *MIND*. He here studies (1) the modifications produced in a psychological process by the mere fact of its coinciding with another process; (2) the effects produced when attention, instead of dividing itself among the different phenomena produced in the 'subject,' fixes itself on one, thus determining a state of distraction with regard to all the rest. Among the cases of simultaneous voluntary movements under (1) is the performance of different movements with the two hands. For the explanation of the phenomena observed, M. Binet supposes that each psychical synthesis has a tendency to develop itself in all directions, and so tends to impose its own form on the other. Under (2) are studied cases of "automatism by voluntary distraction". The following conclusions are formulated: (1) When two voluntary psychological phenomena that have not a common end are provoked simultaneously in a person, they often perturb one another. When one phenomenon is voluntary and the other "automatic," the perturbation does not take place, or not to the same extent. (2) The disturbances consist in (a) unconsciousness of movements duly performed, (b) irregularity in the performance of movements, (c) suppression of movements. They are more marked as the intellectual operations required are more complex. (3) Great differences exist between different persons as regards the power to perform intellectual operations simultaneously. (4) When several processes coincide, one of them may show a tendency to impose on the others its particular form or rhythm.] Adam—*L'imagination dans la découverte scientifique d'après Bacon*. [Although he laid so much stress on method, Bacon did not altogether exclude the guidance of intelligence and the suggestions of imagination from the search for natural causes.] Notes, &c. (P. Lesbazeilles—*Un paradoxe psychostatique*. G. Sorel—*Esthétique et psychophysique*. E. Gley et L. Marillier—*Sur le sens musculaire*). Analyses, &c. No. 8. E. de Roberty—*L'évolution de la philosophie*. [Criticising Comte and other thinkers, the author arrives at a law of the dependence of philosophy on the state of the special sciences, which he proposes to substitute for Comte's law of the three stages. With this dependence goes a more general order of dependence of the factors of social evolution. The order is—science, philosophy, art, industry; each of the later terms depending directly on all that precede it. Thus industrial evolution is determined by æsthetic, philosophical and scientific ideas; æsthetic evolution by philosophy and science; and philosophical evolution (as it is set forth at length) by the sciences.] A. Fouillée—*L'évolutionnisme des idées-forces*. ii. *Les états de conscience comme facteurs de l'évolution*. [M. Fouillée's second article begins with a criticism of the "double-aspect theory," which he finds to be erroneous in so far as it makes physiological processes fundamental and psychological processes their mere accompaniment or "epi-phenomenon". The idea, as state of consciousness, is the index of a movement and the revelation of a force, and, since it does not really exist in isolation, must be regarded as an element in the efficient causation of things. "Real nature knows not our abstractions: feeling and motion are there united." Every cosmical theory that omits consciousness from among the factors of evolution is therefore "*philosophically insufficient*".] A. Binet—*Recherches sur les mouvements chez*

quelques jeunes enfants. [Experiments were made with young children to elucidate (1) the co-ordination of movements in walking, (2) the bilaterality of movements, (3) automatism, (4) physiological reaction-time. The instinctive character of co-ordination seems to the author to come out strongly. A tendency of movements in general to bilaterality is observed. Distinct examples of "automatism," or movements produced by "suggestion" apart from the conscious will, have been detected. Lastly, the reaction-time of children is found to be very long compared with that of adults.] Analyses, &c. (J. M. Baldwin, *Handbook of Psychology*, i. F. Tönnies, Hobbes's *Elements of Law and Behemoth*, &c.). Rev. des Périod. Correspondance (Ch. Henry—Esthétique et psychophysique).

LA CRITIQUE PHILOSOPHIQUE (Nouv. Sér.).—An. v., No. 12. [This, as formerly announced, is the concluding number of the *Critique Philosophique*. In some brief words of farewell ("Pour prendre congé de nos lecteurs") M. Renouvier gives an account of the foundation of the Review eighteen years since, of its aims (its title was at first—*Critique philosophique, scientifique, politique et littéraire*) and of their gradual restriction, from various causes, to the more purely philosophic field. With some remarks on the political and religious application of the Criticist philosophy (the latter carried out for some years by M. Renouvier's other Review, the *Critique Religieuse*) there is an excellent summary of the general philosophic principles of "Neo-Criticism" and statement of its historical relations. The Criticist philosophy claims to be descended at once from Hume and from Kant. Berkeley and Hume, as M. Renouvier puts it in a note, gave in advance the means of correcting the Kantian doctrine, of freeing it from its scholastic bonds and its obscure notionism, and of bringing it within the terms of the principle of relativity established by its own requirement that the operations of the understanding should confine themselves within the limits of the possible application of the categories to experience. Neo-Criticism is, to a certain extent, in agreement with Positivism; having in common with this the manner of viewing physical causality derived from Hume. Comte, instructed by the application of mathematics to natural phenomena, did what Hume had not done—formulated the idea of physical law (which Hume had not disengaged from "experience and habit"); but, from not having "passed through Kant," he always remained at the point of view of a merely empirical phenomenon. The Criticist phenomenonism, on the other hand, being "apriorist" as well as analytical, succeeds in reconciling Hume and Kant—the two thinkers who have reached the highest points in the philosophy of method since Descartes. It at once overthrows "substantialist realism"—in M. Renouvier's view the only possible foundation for monism, and opens the way for the postulation of "transcendent truths"—the belief in which is forbidden by positivism. In all that goes beyond empirical laws, the moral law, it holds, has the right to determine the hypotheses accepted. For the Criticist point of view, the three Kantian postulates formulated in the *Practical Reason* remain, and will always remain, the expression of the triple truth arrived at under the guidance of the moral law. While it is the legitimate heir of one great philosophic movement, the Criticist doctrine is foreign to the evolutionary current which seems about to sweep off the whole European world at the end of the present century; and, from this side, it is hostile to Comte's attempt to formulate necessary historical laws of the human mind and of religions. The result of the belief in a fatal evolutionary process without definitive end must be, M. Renouvier contends, a pessimism of the Buddhistic order—

that is, of the order which regards evil as inherent in the nature of things and never to be finally overcome. Here he is almost betrayed into formulating an evolutionary view of his own as to a future movement of thought that is to end in a philosophic battle of Armageddon between "two principles, two irreconcilable modes of philosophising, two manners of comprehending the world"; though he saves himself by a protest against "the fashionable word" Evolution, which he finds himself obliged to use. It will be long, he thinks, before even the first really critical phases of the contest are seen; but it has already begun; and he has fought, at the beginning of hostilities, what he has believed to be the 'good fight'.

RIVISTA ITALIANA DI FILOSOFIA.—An. v. 1, No. 1. C. Cantoni—Relazione sul Concorso al premio Reale assegnato alle scienze filosofiche per l'anno 1889. R. Benzoni—Recenti pubblicazioni sul problema della conoscenza. S. Ferrari—La scuola e la filosofia pitagoriche (i.). [The first part of a history of the Pythagoreans. An attempt is made to determine what is due to Pythagoras and to individual members of the school, in spite of the general usage (in Aristotle and others) of speaking of the school collectively.] P. de Nardi—I nuovi Tomisti e la Storia della Filosofia. [If the system of one philosopher could be taken as equivalent to Philosophy, that system would certainly not be Thomism, which was constructed essentially with the polemical purpose of refuting Averroism and is full of imperfections and defects.] Bibliografia, &c.

RIVISTA DI FILOSOFIA SCIENTIFICA.—Vol. viii., No. 11. G. Marchesini—Conscio ed inconscio. [Consciousness is "a degree of psychophysical work" which does not necessarily accompany every psychical fact.] F. Gabotto—L'epicureismo di Lorenzo Valla. [In the dialogue *De voluptate ac vero bono*.] F. Pietropaolo—Sulle dottrine ideologiche di P. Galluppi. [Includes brief summaries of three unpublished letters of Galluppi.] Note critiche, &c. (F. de Sarlo—Vecchia e nuova fisiopsicologia). Riv. Bib., &c. No. 12. E. Morselli e E. Tanzi—Contributo sperimentale alla fisiopsicologia dell'ipnotismo. [An experimental study of respiratory and circulatory changes produced in hypnotism: best explained by "suggestion".] F. Gabotto—L'epicureismo nella vita del quattrocento. [Dominant influences in Italy in the fifteenth century were Epicureanism and a Christianity for the most part but not wholly conventional. Epicureanism had ascendancy over other ancient systems because the Latin classics, in which there is little about Aristotle and much about Epicureans and Stoics, were then mostly studied; also the conditions of life were unfavourable to Stoicism.] Note critiche, &c. (F. Puglia—L'antropologia criminale). Riv. Bib., &c.

ZEITSCHRIFT FÜR PHILOSOPHIE, &c.—Bd. xcvi., Heft 2. G. Heymans—Noch einmal: Analytisch, synthetisch. R. Seydel—Entgegnung. L. Busse—Beiträge zur Entwicklungsgeschichte Spinozas, v. (Schluss). G. v. Glasenapp—Die Grundlage der Sittlichkeit. [Man has always the consciousness that there is something he ought to do or leave undone. The power of making ethical distinctions is therefore an original constituent of human nature. What particular distinctions men make, on the other hand, depends on experience; even the most general positive maxims being of empirical origin. The ground of obligation the author finds it impossible to assign with certainty. A satisfactory ground would be the existence of a moral Providence; but this cannot be asserted scientifically. Against Utilitarianism he urges that the only "absolute

value" at the basis of the conception of the useful is pleasure, and that the moral judgment has often to decide which is the superior pleasure, and is consequently prior to the utilitarian criterion.] Recensionen, &c.

PHILOSOPHISCHE MONATSHEFTE.—Bd. xxvi., Heft 3, 4. Th. Ziegler—Ethische Fragen und Vorfragen (i.). [Some considerations on the extent to which it is possible for ethics to be scientific, and for ethical science to be of direct practical service. Against "rigorism" the author maintains that in the decision of questions of conduct individual tact has to speak the last word. Ethical science, he finds, necessarily depends on a speculative view of the world. Psychology and history are its two auxiliary sciences.] P. Natorp—Aristoteles und die Eleaten (Schluss). [Aristotle's criticisms of the particular arguments of the Eleatics are examined. He did not himself solve the Eleatic problem, which was—the conflict of the laws of sensibility with the laws of the understanding.] Th. Lipps—Ästhetischer Litteraturbericht (ii.). [Deals chiefly with recent works on the æsthetics of architecture.] Recensionen, &c.

ZEITSCHRIFT FÜR VÖLKERPSYCHOLOGIE U. SPRACHWISSENSCHAFT.—Bd. xix., Heft 4. A. Hirzel—Gleichnisse und Metaphern im Rigveda (Fortsetz.). [The similes and metaphors of the Vedas are minutely compared with the imagery of Homer, Hesiod, Æschylus, Sophocles and Euripides.] A. Mayer—Ein deutsches Schwerttanzspiel aus Ungarn (Nachtrag). [States difficulties in connexion with the author's own explanation of the "sword-dance" as a representation of the slaying of the Winter-god by the Spring-god.] Beurteilungen.

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE.—Bd. xiv., Heft 1. M. Radaković—Ueber Fechner's Ableitungen der psychologischen Massformel. H. Höfding—Ueber Wiedererkennen, Association und psychische Activität (ii.). [Argues, first, for the psychological fact of "immediate recognition" against Dr. A. Lehmann's attempted experimental disproof of the fact: the objection so frequently brought against mental "observation"—that by direction of the attention it modifies the facts to be investigated—applies no less to psychological experiment. A classification of the kinds of recognition is next given. Afterwards, "contact-association" and "free resemblance-association" are discussed. "Contact-association" is found to presuppose association by similarity, or at least "immediate recognition". "Free resemblance-association" is explained to mean association between similar states that emerge independently in consciousness.] A. Marty—Ueber Sprachreflex, Nativismus und absichtliche Sprachbildung (vi.). [In the course of a defence of his "associational" theory of the origin of language the author traces speech and thought to the human power of abstraction—i.e., attending separately to the elements of intuitions—which animals do not possess to any degree.] J. Petzoldt.—Vitaldifferenz und Erhaltungswerth. R. Wahle—Nachtragsbemerkungen zu den "Fragen betreffend Aehnlichkeit und Intensität". Anzeige, &c.

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE.—Bd. iii., Heft 2. O. Kern—Zu Parmenides. H. Siebeck—Zur Psychologie der Scholastik. [On Roger Bacon, whose most important advance in positive view—as distinguished from general anticipations of the conception of experimental method—is found to have been in psychology and theory of knowledge. Here he is, in his actual doctrine as well as chronologically, the immediate predecessor of Duns Scotus.] F. Tönnies—Siebzehn Briefe des

Thomas Hobbes an Samuel Sorbière, &c. (ii.) [Will be dealt with at length in next MIND.] C. Hebler—Zwei Platonische Stellen. A. Chiappelli—Per la storia della Sofistica greca (ii.). [Among the Sophists two schools are distinguished—the school of “nature-worship” and the school that traced everything characteristic of man to institutions and education; Hippias being viewed as the representative of the former and Protagoras of the latter. The doctrines of the former school resulted logically in despotism, from its claiming for the naturally stronger the right to the full use of his powers; those of the latter in anarchy, from its reducing everything in human affairs to mere convention. Socrates, placing law on the foundation of dispositions inherent in human nature, but requiring education to call them forth, harmonised the opposite theses of Protagoras and Hippias. His position, however, was not maintained by the post-Socratic schools, all of which returned to the doctrine of the ethical supremacy of nature.] W. Dilthey—Kants Aufsatz über Kästner und sein Antheil an einer Recension von Johann Schultz in der Jenaer Literatur-Zeitung. G. Itelson—Zur Geschichte des psychophysischen Problems. [A history of anticipations of the position—urged by many recent writers as invalidating Fechner’s psycho-physical law—that psychical intensities are not measurable. Interesting passages are quoted, containing statements of the position and its grounds, from Malebranche, Ploucquet, Galluppi and Eberhard. An opinion of Kant’s is found to have been possibly arrived at under the influence of Ploucquet. Finally a passage is cited from De Morgan (on the possibility of a “logarithmic brain”) as appearing to anticipate Fechner, but really containing the idea of a “metarithmetic” resembling the “metageometry” that has since been developed.] Berichtigungen und Nachträge. Jahresbericht (H. Oldenberg, E. Zeller, K. Müller). Neueste Erscheinungen.

PHILOSOPHISCHES JAHRBUCH.—Bd. ii., Heft 4. P. V. Cathrein—Das jus gentium im römischen Recht und beim hl. Thomas von Aquin. C. Gutberlet—Der Kampf um die Willensfreiheit. [“Anti-Christian Philosophy,” in order to be consistent, is obliged to deny truths which press themselves as facts upon every natural and unprejudiced judgment. One of these “cardinal points” is Free-will. The problem for determinists is to explain away “the sun-clear consciousness of freedom”. Indeterminists, on the other side, if there are not reasons that compel us to regard this consciousness as an error, may be permitted to draw the conclusion that Free-will is a secure fact. The arguments of determinists (P. Réé, and F. Paulsen specially examined) are without constraining force. Decision rests with “the general conviction of mankind”.] C. T. Isenkrahe—Der Grundirrtum der neuern Philosophie. [“The ground-error of modern philosophy”—that is, of philosophy since Descartes and Locke—which has caused it to fall deeper and deeper into negation, is “the falling-off from the principle of evidence”. The truth of knowledge, whether sensible or supersensible, cannot be demonstrated. Knowledge must be taken, as it was by “the old Dogmatism,” as immediately evident. The *principle* of Criticism, therefore, must be broken with, and the watchword must be, not “Back to Kant,” but “Back to the old School, to the principle of Evidence, to the old *Dogmatism*.”] E. Illigens—Die unendliche Menge (i.). Recensionen und Referate, &c.

CORRECTION: In MIND No. 57, p. 159, for P. K. MOKIEVSKY, read P. V. MOKIEVSKY.

M I N D

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.



I.—OUR SPACE-CONSCIOUSNESS: A REPLY.

By HERBERT SPENCER.

SINCE the second edition of *The Principles of Psychology* was published, there have come, from adherents of Kant, some criticisms on the doctrine contained in §§ 326—335. They have adopted a common controversial practice, of which the formula is—When you cannot meet an issue that has been raised, raise a new issue. Instead of defending the Kantian doctrine against my attack, they have made a counter-attack. I set forth six objections. Besides showing that on the very first page of the *Critique of Pure Reason*, Kant so changes the meaning of a word as to vitiate the rest of his argument; and besides showing the untruth of his assertion, currently accepted, that Space is a form of sense-intuition at large (for it is a form only of the intuitions derived through touch and sight); I have pointed out that the Kantian hypothesis involves four impossibilities of thought (*Prin. of Psych.*, § 399).

Though it would, I think, be time enough to answer my critics after my criticisms have been answered, or at any rate, after some attempt has been made to answer them; yet it appears needful, without waiting longer, to rebut the arguments used against me. By nine out of ten, absence of

reply is supposed to prove inability to reply. Hence I have decided to pause a moment for the purpose of showing that while there has been no defence against my attack, the counter-attacks fail.

Of such counter-attacks the most elaborate is that made by Prof. Watson, of the Queen's University, Canada, in *Kant and his English Critics*; and as I am not aware that any arguments have been used by others which he has not used, I may fitly limit my attention to the chapters in which he seeks to refute my views. Had I any wish to avoid joining issue on essential points, I should, indeed, have valid reasons for doing so, of which here are some.

When dealing with the beliefs held by me concerning certain of our ultimate consciousnesses, and more especially our consciousness of Space, Prof. Watson says on p. 262, that he confines himself "mainly to the third chapter of the second part of Mr. Spencer's *First Principles*": the word "mainly," not implying that he takes account of other works of mine, but merely that he takes account of other passages in *First Principles*. Now in the chapter he professedly criticises, there is a foot-note stating that the justification for the doctrine there briefly set forth as part of a general argument, will be found in the *Principles of Psychology*, where the full exposition of it occupies a chapter—or rather two chapters; for the chapter on "The Conception of Body as presenting Statical Attributes," contains the first part of the argument which is brought to a conclusion in the next chapter on "The Conception of Space". This full exposition occupying 42 pages, Prof. Watson deliberately ignores: preferring to base his criticism on a brief summary occupying 3 pages, which does not profess to contain the justification, but only the conclusion! An author dealt with after this fashion would, I think, be warranted in disregarding the attack.

Moreover I might, with good ground, conclude that it is useless to discuss a philosophical question with one who professes to have a consciousness of something which I find it impossible to frame any consciousness of. If two contestants give different meanings to the words and phrases used, and, still more, if one sees a meaning where the other sees none, there is no chance of an agreement between them. Prof. Watson says,—“In intelligent experience space and time are not posterior, but prior, to co-existing and successive objects, as undifferentiated space is prior to positions—i.e., limitations of space” (p. 273). Now when I look into

my consciousness to find the something described as undifferentiated space, or space as preceding in order of existence all positions, I find nothing whatever answering to it. Unless I suppose Prof. Watson is using words to which he attaches no ideas, I must suppose that he can think of this undifferentiated space in which there are no positions; and as I am utterly incapable of doing this, there does not exist between us that common ground which is needful before argument can be carried on to any purpose. Were I to use the phrase "undifferentiated space," as defined by Prof. Watson, I should be using what is, to my mind, though not it seems to his, one of those eviscerated phrases which will no more help to lay hold of a truth than a stuffed greyhound will catch a hare.

Again, there is the question of a criterion of truth, in the absence of which, as accepted by both of two disputants, an argument may be stopped at any point, or its conclusion rejected, by simple denial. I have myself propounded and defended such a criterion; and though there have been criticisms on my argument, I have not yet met with any other proposed criterion. The assumption seems to be that discussion may profitably be carried on while the parties to it have not come to an agreement respecting the character of a proposition which must be accepted, as distinguished from one which may be denied. Prof. Watson discusses the universal postulate, and raises various objections, concerning the validity of which I need here say nothing. I have merely to point out that he proposes no criterion in its stead. If, of two who were negotiating a commercial transaction, one offered security and asked for security in return, while the other, objecting to the security offered, declined to make any arrangements by which evasion of the contract should be guarded against, the first of the two would very probably drop the negotiation. And, in like manner, I might properly decline discussion with one who refused to abide by a proposed guarantee of validity, and failed to offer one himself.

Yet another justification for passing over Prof. Watson's criticisms would be that he refuses to recognise, as a possible problem, the problem I deal with; since, by assuming that knowledge has at the beginning the same characters which it has at the end, he tacitly denies the process of development. He says:—"Individual feelings, however numerous, cannot possibly account for the knowledge of extended things or of extension since such feelings are assumed to be destitute of that universality which is the condition of any

knowledge whatever" (p. 272). Does Prof. Watson think that at the moment the newly-born infant first closes its lips round the nipple, it knows its sensations in connexion with their respective universals? If he does not think this, then he must admit that in the infant what he calls knowledge slowly emerges out of something which does not answer to his definition of knowledge. If, however he has the courage of his opinions, and affirms that consciousness of "that universality which is the condition of any knowledge whatever" precedes in the infant the reception of its first sensations; then, as I say, no good can come of an argument between one who proposes to trace the genesis of intelligence, and one who holds that intelligence did not acquire by degrees the structure which we recognise in it, but had such structure at the outset.

This tacit assumption that what we now distinguish as thought, has always had the traits which are conspicuous in it, and this tacit ignoring of the very hypothesis to be discussed, that these traits have arisen in the course of a slow genesis, crop up continually throughout Prof. Watson's criticisms. For example, he says:—"It is not possible to be conscious of events as uniformly sequent, without being conscious of substances as dependent upon and influencing each other; or, to take experience at an earlier stage, it is not possible to think of events as following upon each other in time, apart from the thought of things as co-existing in space" (p. 270). This is an implied repetition of the Kantian dogma respecting forms of intuition, which is true only of certain classes of intuitions. For, as I have elsewhere shown (*Prin. of Psy.*, § 399), neither sounds nor odours have space for their form of intuition. If Prof. Watson does not perceive that, were he without the knowledge obtained through touch and vision, he could be conscious of successive sounds "apart from the thought of things as co-existing in space"; and if he does not perceive that even now he can be thus conscious of a melody which persists in intruding upon consciousness; then he affords further evidence that our two consciousnesses differ so much that comparison of experiences can lead to no definite result.

Contending that the consciousness of space is inseparable from the first experiences of things in space, Prof. Watson says:—"We are told of 'impressions of resistance,' and of 'muscular adjustments'. Now, an impression of resistance, is not a mere feeling, but the conception of an object as resisting, and such a conception involves a construction of reality by relations of thought. Similarly, 'muscular adjust-

ments' pre-suppose a knowledge of the muscular system, or, at least, of the body as it exists for common consciousness and, here again, relations of thought are inconsistently attributed to mere feeling" (p. 275). As before, we see that Kant's defenders insist on carrying with them the contents of developed consciousness when interpreting undeveloped consciousness; or, in other words, tacitly deny the possibility of a consciousness which does not contain the chief components of consciousness as it exists in ourselves. As already shown, their method of studying the evolution of thought is that of assuming that thought is complete in essentials at the outset; and, pursuing this method, they do not admit the separability of states of consciousness which are extremely coherent, though even in ourselves it is still possible for us to separate them. For an impression of resistance is a feeling quite distinguishable from the perception or idea of a thing producing it, and may be conceived as occurring in a rudimentary consciousness without any idea of a causing object. Hamilton, while recognising the distinction between sensation and perception, says the two always co-exist, though in inverse intensities. As I have pointed out (*Prin. of Psy.*, § 353), the law, rightly stated, is that sensation and perception tend to "exclude each other with degrees of stringency which ~~may~~ inversely": the illustration which here concerns us being, ~~that~~ the sensation of resistance, when it rises to great intensity, monopolises consciousness. After pressing the finger gently against an angle, and noting that the shape of the angle is the subject of thought, and after observing that as the pressure increases the sensation more and more solicits attention, until when the pressure becomes extreme the sensation alone is attended to, any one may perceive that, even in the developed consciousness, the subjective state produced is separable in thought from the objective producer; and may then conceive an undeveloped consciousness, not yet made coherent by organisation of experiences, in which a presentation of the one may occur without idea of the other.

Thus, as I have said, the conditions to be observed in carrying on profitable discussion are so inadequately fulfilled, that entrance into it might be held useless. But though, for the reasons that Prof. Watson ignores the specific statement of the views he combats, and that he misconceives the problem I have proposed to deal with, and that he professes to have ideas which I cannot frame, and that he neither accepts my criterion of truth nor proposes one of his own—though I might, for these reasons, fitly decline all controversy as futile; yet as I

have said, readers unaware of these reasons will, I doubt not, in this case as in other such cases, conclude that arguments which have not been refuted are valid arguments. I therefore feel it necessary to show that they are not valid.

Past culture, and in great measure the culture received at present, has not familiarised men with the idea of transformation. Only in our own times have the world, and man, and the products of human activity, come to be contemplated as results of a continuous becoming; and even still, this way of looking at things is alien to the minds of all but a few—alien in the sense that it is not constant enough to affect their thinking. One consequence is an inability to believe that something now known as having certain conspicuous traits, can ever have existed under a form in which no such traits were discernible. The difficulty felt is like that felt by the old biologists when they adopted the theory of *emboltement*—the theory that in the germ of every living creature, the future adult exists in little; and that within this exist the immeasurably more minute forms of adults which will eventually descend from it; and so on *ad infinitum*: the reason for accepting this theory being that it was impossible to understand how a complex structure like that of the human body, could have arisen out of something which had no structure. An analogous difficulty is at present felt by the disciples of Kant. These cannot imagine how it is possible that our space-consciousness can have arisen out of that which was not originally a space-consciousness. Yet a cursory survey shows that each of the sciences yields examples of transitions which connect, by insensible gradations, things having apparently no kinship whatever.

Mathematics furnishes us with one. A circle and a straight line seem absolutely unrelated; and yet we may pass from the one to the other by an unbroken movement. Cut a cone at right angles to its axis, and the result is a circle. Incline the cutting plane in the slightest degree, and the circle becomes an ellipse. Increase the inclination, and the ellipse grows more excentric, until it passes into a parabola as the parallelism to the side becomes complete. Further rotation of the plane turns the parabola into an hyperbola, which changes its form with every change of position of the plane; until, when the plane, emerging from the opposite side of the cone, becomes a tangent plane, the two sides of the hyperbola coalesce, and become a straight line. Though the transition may be more simply made, yet this best shows the variety of figures which are united as members of a continuous series.

Take next a case from Physics. To one of the uneducated, and, indeed, to one whose knowledge is limited to that given by ordinary education, nothing could seem more absurd than the assertion that heat and motion are but different forms of the same thing. Motion, he would say, rapid or slow as you may make it, must ever remain motion; and heat, increase or decrease its intensity in whatever degree you please, must always remain heat. Nevertheless, their reciprocal convertibility is a proved truth. When a bullet placed on an anvil is stuck by a hammer, what disappears as arrested motion of the hammer reappears as increased heat of the lead. When steam is let into a cylinder, the heat it loses as it expands is transformed into the motion of its own mass and sundry masses of iron. Though molecular motion is intrinsically of the same nature as molar motion, yet the unaggregated form in which it exists in the one case affects our senses in so utterly different a manner from the aggregated form in which it exists in the other case, that it appears to common sense inconceivable that the two are but different modes of one.

Chemistry furnishes countless instances of transformations from which qualities that appear radically different result. Here is a piece of phosphorus, semi-transparent, waxy-looking, luminous in the dark, showing a powerful affinity for oxygen, burning flesh which it touches, and hence acting as a poison when swallowed. Expose it for a certain time to the temperature of 230° while oxygen is excluded, and all is changed. It has become brick-coloured, perfectly opaque, non-luminous, chemically inert, and may be swallowed in large quantities with impunity. Having neither lost nor gained in weight, nor in any way changed its ultimate nature, it has yet by re-arrangement of its molecules acquired different, and indeed opposite, properties. To which add that when subjected to the fit conditions it re-acquires the original properties.

Biology is rich in examples. One who, lacking entirely the ideas insensibly taken in during ordinary life, was brought suddenly face to face with the facts, would find it incredible that hair and nerve, tooth and eye, had all arisen by insensible steps out of the same originally-uniform dermal tissue. If he contemplated the parts which carry on the pulmonic circulation as they exist in man or any other mammal, he would conclude that their connexion is necessary and must have existed from the beginning: arguing, as he might, that the right auricle and ventricle would be useless in the absence of lungs, and that the lungs would be

useless without the right auricle and ventricle. 'See,' he might say, 'if we stop the breath the heart soon ceases to pulsate, and if the heart stops the breathing quickly comes to an end. Clearly, then, the two must have co-existed as such from the beginning. Their interdependent functions constitute a *form* of physiological action.' Yet the investigations of biologists show that no such arrangement originally existed, but that this reciprocal dependence has been established by degrees.

Nor does Psychology itself fail to yield undeniable instances of transformation allied to those which the Kantists hold to be impossible. An example is furnished by rapidly-recurring sensations of light. Every child, at some stage or other of mental development, observes that on whirling round a stick, of which the end is burning or red-hot, an apparent circle of light is produced : by a succession of sensations there is produced what appears to be a continuous sensation. The direct verdict of consciousness is that there exists a luminous circle ; whereas we know that at any moment light exists only at one very small part of the circle. An illusion of like nature, but less easily shown to be one, is supplied by various flames which appear steady and persistent, but each of which consists of a series of small explosions : a fact demonstrated in singing flames. In these there are simultaneously produced a continuous impression of light and a continuous impression of sound, by impressions which are in both cases discontinuous. This example, which singing flames furnish, introduces us to the example furnished by musical sounds in general. These show us clearly how a state of consciousness which seems perfectly simple and perfectly homogeneous, may be neither the one nor the other. The crack of a whip, or the tap of one's nail on the table, seems quite unrelated to a musical tone ; save in the respect that both are sounds. To those who have not experimented on the matter, nothing can seem more obvious than that, however short the lengths into which you cut a tone, it will still retain its quality as tone ; and, conversely, that by no possibility can a musical tone be produced from separate cracks. Yet both of these conclusions are false. The rotating instruments of Hooke and of Savart, by which separate sharp cracks can be made with increasing rapidity, prove uncontestedly that brief unmusical noises may be so arranged as to constitute a long musical sound ; and that musical sound, smooth and continuous though it seems, really results from successive impacts of aerial waves, which yield separate impressions to the nerves.

But the Kantists, bent on maintaining that supernaturalness of mind which is implied by the hypothesis of pre-determined forms of thought, and therefore profoundly averse to that evolutionary view which contemplates mind as having had a genesis conforming to laws like those conformed to by the genesis of the body, ignore these significant facts furnished by various orders of phenomena, and ignore even the significant facts furnished by psychology itself. They are positive that a certain kind of consciousness which, in the developed mind, seems continuous and homogeneous, must always have had the traits of continuity and homogeneity—cannot possibly have been composed out of units of thought which were different and discontinuous. But the reader who is not bound by a foregone conclusion, will perhaps be prepared by these illustrations to see that the consciousness of space may have arisen out of components which, considered individually, contain no consciousness of space.

The reader will be still better prepared if, after contemplating these instances of transformations throughout things in general, as well as throughout certain modes of mind, he pauses a moment to contemplate a familiar experience which, in another way, elucidates the process of producing, by composition, mental states that are unlike their components.

When the end of a walking-stick is thrust into clay or other yielding matter the consciousness of softness presents two significant traits. The first is that though it seems quite simple, it is demonstrably compounded out of elements which, considered separately, are unlike it. One of them is the sensation of slight pressure from the handle of the stick on the palm of the hand. Supposing the limb to be motionless, something hard may be pressed against the end of the stick with such small force as to produce in the palm just the same sensation. Similarly, if we consider by themselves the sensations of muscular tension which occur in the moving arm while the stick is being thrust into the clay, it is clear that, taken by themselves, these do not yield the consciousness of softness: equal feelings of tension and motion might be produced by pushing forward a child's perambulator. But when with the pressure on the palm of the hand and the changing sensations of tension in the arm, is joined the visual perception of stationariness in the mass, a consciousness of softness arises: there results a knowledge which by the unanalytical intelligence, is taken to be simple and directly yielded instead of being, as we see, complex and inferential.

The other trait of this cognition is its apparent externality.

Anyone who accepted his experiences uncritically, would say that the softness was felt by him at the place of its existence; and if you pointed out that this could not be, since the stick is senseless matter, you would simply puzzle him by the conflict between reason and perception. But to one who can rightly interpret it, the experience shows that this feeling of softness at the end of the stick is not only compounded of mental states unlike it, but that though the soft object is remote from the organs of sense, its softness appears directly present to them.

And now, carrying with us these general truths, (1) that a consciousness which appears to be simple, continuous, and undecomposable, may nevertheless consist of multitudinous units, (2) that by the compounding of consciousnesses, now of the same kind and now of different kinds, a consciousness quite unlike, in apparent character, may be produced; and (3) that by a seeming extradition of sensations, perception may have its bounds apparently extended to places beyond the organism; let us consider how far, by their help, we are enabled to conceive the space-consciousness as a product of evolution.

It is clear that as the apparently continuous and homogeneous consciousness of sound is constituted by separate units, so may be the apparently continuous and homogeneous consciousness of space; and we have, in fact, more easily accessible evidence that it is so constituted, since it is readily decomposable into relations of positions.

But if the consciousness of a relation of positions as tactually disclosed, contains certain elements which are separable from space-implications, and would be cognisable were space unknown—if it contains two sensations of touch with an intervening sensation of changing muscular tension; then, as in other cases above instanced, there may be produced by union of these components, a state of consciousness unlike any of them—a state in which they become so fused, and their respective natures so masked, that the resulting relation of positions appears to be *sui generis*—seems as unlike the sensations it is formed of, as the transparent liquid sulphuret of carbon is unlike the opaque and solid sulphur and carbon which form it by their union.

And then, passing from the primordial relations of position as known by touch to the relations as known by sight, which experience discloses as their equivalents, we may observe, in the third place, that in virtue of the extradition of sensations so clearly illustrated when the walking-stick is thrust into the clay, we are made to feel as though the

relations of position at a distance are present to a consciousness which extends to them. Whence also it follows that by the fusion of an infinity of such relations, which are simultaneously presented to us because the multitudinous retinal elements can receive simultaneous impressions, there is produced our aggregate space-consciousness.

And now, possessed by these preliminary conceptions, let us consider more closely the process of genesis as we may conceive it to have taken place in a developing consciousness.

Wholly to divest ourselves of that space-knowledge, the great body of which lies latent in our inherited nervous structures, and the finished form of which is produced by personal experiences, is of course impossible. All we can do is so to place ourselves as to exclude the space-knowledge accompanying acts of vision, and to reduce to a minimum the space-knowledge which tactual exploration yields; and having done this to suppress as much as possible the ideas of past experiences. These ends may be best compassed by being led blindfold into the middle of a large, entirely unknown, and absolutely dark room: the blindfolding being desirable to prevent perception of the position of the walls on entering, and such revelation of them as is yielded by light through crevices. After being left alone it will be found that in the absence of any space-suggestions implied by visual and tactual perceptions, or those ideas of them which knowledge of the room would give, much of the space-consciousness is lost. So little space-consciousness remains that there is almost a sense of imprisonment—an oppressive feeling of being shut in by the darkness. What components of presentative consciousness continue distinct? Primarily those sensations of changing muscular tension which accompany movements of the limbs, and which, in the absence of space-knowledge, are still known as continuous slight efforts, varying according to the muscles contracted and the degrees of their contraction; and there is experience of the ability to produce and reproduce those slight serial feelings without check—an experience which we ordinarily identify with freedom of movement. If the observer proceeds to grope about until he touches an article of furniture, he finds that one of these series of muscular feelings previously known only with indefinite beginnings and endings, is sharply cut short by the occurrence of a vivid feeling of another kind—a sensation of touch. On moving his hand along the edge of, say, a table from the corner first touched to another corner, he may perceive that

in the absence of any space-interpretation he would still be conscious of a series of muscular tensions, a simultaneous series of touches, and, in this double series, two sharp marks caused by the corners ; as also of reversed series when his hand was moved the other way. And he may see that such experiences would be receivable and distinguishable if no space-knowledge existed ; as would also the experiences in which a series of muscular tensions was cut short at either end by a touch without any intervening sensations of touch : the cases being those in which the hand was moved, not over a surface or edge but from one projecting point to another. Amid these varied experiences there is one thing constant. The muscular strains forming the series may be strong or weak ; they may form a short series or a long one ; they may come from these muscles or those ; the touch may be slight or strong ; may be received by this part of the body or that. But in every case there is a reversible series of sensations of tension sharply marked off at either end by a sensation of touch.

What in other cases happens when among many experiences one element is constant while all others are variable ? The variable elements, ever conflicting, continually cancel one another ; while the constant element becomes more distinct. Hence then there arises an established association between two separate touches and an intervening series of strains—a general experience abstracted from particular experiences. And it may be perceived that the abstraction might be made by a developing intelligence before there existed any space-knowledge of two positions and the interval.

When, by groping about the table, some article, say a small book, is laid hold of, there comes a further experience. Two sharp sensations of touch are simultaneously received from two angles. Whereas two such sensations were, before, separated by serial feelings of effort occupying an interval of time, now they are not thus separated. Or, to speak in terms of a rudimentary consciousness, not yet containing the abstract idea of time, in the first case there come between the two feelings certain others unlike them, while in the second case there are no such others : the two exist in consciousness together. Though, literally, they may not be equally present, yet the transitions from the one to the other are so rapid that they appear present at once. A further fact is disclosed. While the sensations from the angles of the book are simultaneously received, it is found on experiment that they may, like those from the angles of

the table, be also received in succession with an intervening reversible series of sensations of touch and tension, or of tension only: these two experiences are discovered to be equivalents. That is to say, the time-element, or that which answers to the time-element, disappears; and two consciousnesses which are connected by a reversible series of muscular tensions are proved to be identifiable with two consciousnesses which coexist. Though in a developed intelligence the two positions are thought of as having a space-interval, and the potential series of sensations uniting them is thought of as motion, yet it is clear that, apart from the thoughts of space and motion, the experiences described may be distinguished and classified, and there may be reached that consciousness of co-existence out of which the consciousness of space is to be built.

Sundry other experiences are to be named which aid in developing the consciousness of tactually-known space. Sensations of touch from comparatively remote points, say, on the surface of a wall, may be simultaneously received at the extremities of the outstretched arms; and may then, as before, be united by long chains of feelings of touch and tension. The hands and feet may be similarly used to achieve parallel results. And often-repeated experiences, yielded by the same environing objects, reveal such approximate constancy in the serial feelings between particular sensations of touch, that it comes to be known at about what points in such series these last will occur. There is so constituted a knowledge of the whereabouts of surrounding things, given in terms of serial sensations—a knowledge which implies ability to carry on some converse with things in space, without any greater knowledge of space than is implied by knowledge of co-existent things. Self-exploration of the body and limbs affords further components. Here the part touching and the part touched yield simultaneous sensations, giving a kindred, though different, experience of co-existence. Moreover it is found that two sensations originated on the skin may be brought into relation in consciousness either by the passage of the finger from the one to the other, or by laying the whole hand upon the surface between them: another way in which the equivalence between certain co-existing sensations and certain serial sensations is established.

This consciousness of space acquired tactually, is of course vastly extended and transfigured when there is added the visually acquired consciousness of space. The retina is a tract of multitudinous separate sensitive agents which, by

the focalised rays cast upon it, is enabled to touch the images of surrounding objects, as the skin touches the objects themselves. It has the immense advantages that while mediately touching one object, or part of an object, with absolute distinctness, it mediately touches a multitude of others with considerable distinctness ; and so brings all of them into relations of co-existence, while touch can bring only a few into such relations. Moreover, by those focal adjustments which produce distinct images at different distances, the consciousness of co-existence is extended from objects on the same plane to objects on planes at all distances : whence results that consciousness of space of three dimensions, in yielding which vision so immensely transcends touch. At the same time, the relations of co-existent positions previously known only in terms of serial tensions and touches, come to be known also in terms of visual impressions and the serial strains of ocular muscles. When looking at the small book, as when grasping it, there is practically a simultaneous consciousness of the angles, while there is the power of directing the eye, as of moving the fingers, from angle to angle, and perceiving that the impressions of the angles are in each case united by a double series of sensations : the equivalence between the two double series being such that the one being given the other is known. What next happens ? The same two occupied positions produce, now a pair of consciousnesses through touch and now a pair through vision, and these two pairs being united by different sets of serial sensations, these different sets tend to cancel one another : become known as non-essential elements in the experience of the relation between the different positions. Once more, the two positions, being occupied at one time by these objects and at another time by those, come to be dissociated from all particular objects occupying them, and conceived in themselves, apart from the objects ; just as the relation between them comes to be conceived apart from the serial sensations, tactual or visual, experienced in establishing it. Hence eventually arises a consciousness of two positions in space and an interval between them—a consciousness freed from all sensory elements. This purified consciousness of co-existing positions having been reached, the building up of the consciousness of space at large becomes easy to understand. And then, further, it becomes easy to understand how the space-knowledge gained through vision, being at once relatively extensive, relatively exact, and apparently effortless, is habitually used instead of the space-knowledge gained through touch. The symbols which

our eyes yield are so immeasurably more convenient and copious than those which our hands yield, and the substitution of the first for the last has grown into so irresistible a habit, that thought is carried on in the substituted symbols almost to the exclusion of the original ones, and without recognition of the truth that they derive their meanings from the original ones. Whoever will observe that, while running his eyes over these printed marks, he practically ignores the equivalent oral articulations into which he is internally rendering them; and if he will further observe in how vague a way he imagines the objects and acts for which these words stand; and if he will then remember that this partial substitution of printed marks for the things they remotely signify has taken place in the course of a few years; he will have no difficulty in conceiving how the substitution of that knowledge of space expressed in visual language for that knowledge of space expressed in tactual language, which has been taking place through the whole series of ancestral beings, has become organic. When he recollects, too, that words much used seem to have absorbed some of the natures of the things they stand for, so that the uneducated think there are real connexions between the two; he is helped to perceive how these visual space-impressions have absorbed the meanings of the tactual space-impressions they are equivalent to, and have come to have meanings which appear to be independent. While at the same time it becomes comprehensible that, from this compounding of elements of consciousness of sundry kinds, there eventually emerges this kind of consciousness which seems unlike in quality to any of them; as we have already seen happens in other cases, with things material and mental.

To the last, however, our developed consciousness of space yields up its original components when analysed. As distinguished from body, it presents itself as possibility of movement; its parts are reached by movements; its amounts are measured by movements. A prisoner in the dark learns the size of his cell by muscular motions, which are severally ended by touches; and the consciousness that he has but little space is the consciousness that he has but little freedom of motion. Even in a lighted room, when shut up, the consciousness of space is, for the time being, practically restricted to the sphere of potential movement within the walls. Moreover, our visual consciousness of space is given in terms of the muscular movements which adjust the axes and foci of the eyes and turn them about. Lastly, when there is any doubt about visually-perceived space-relations,

they are brought to the test of comparison with tactually-perceived space-relations; and, as in the case of optical illusions, the verdict of these last, received through muscular motions and touches, is held to be conclusive. That is, muscular motions and touches are the ultimate components of the space-consciousness: all other components being but symbols of them.

These last paragraphs prepare the way for a final reply—the reply, namely, that all the truth there is in the doctrine of forms of intuition is not only congruous with the hypothesis of evolution, but is inevitably implied by it, and is implied under a comprehensible shape instead of under an incomprehensible shape. For the inherited structures of the organism presuppose actions, bodily and mental, to be performed by them; and their respective adjustments constitute the pre-determined forms of such actions.

The first elucidation of this general truth may be given as a reply to a possible argument. Some pages back, when dealing with the statement that consciousness of the object touched is necessarily given along with the sensation of touch, and when pointing out that if the sensation caused by pressure against the object becomes intense it excludes all thought of the object, I passed over a rejoinder that might be made, because I intended to deal with it here: the rejoinder that though, when a sensation of pressure becomes intense, thought of the external object causing it may cease, yet there remains a consciousness of the position of the part in which the sensation exists. This is certainly true in the adult, and doubtless it soon becomes true in the infant. But already, before individual experiences are received, there exist the nerves supplying the part affected, and the nervous centres with which they are connected; and already, therefore, in these inherited structures, evolved during converse between organism and environment through countless ancestral lives, there pre-exists a potential knowledge of position: infinitely numerous past experiences have so moulded the nervous organisation that the sensation excites the correlated consciousness of the spot affected. Several kinds of evidence yield indirect verifications of this view. We have, in the first place, the fact that the apprehension of position is definite or vague according as the part is well or ill placed for purposes of exploration. Knowledge of the point at which a finger has been touched is far more precise than knowledge of the point at which the back has been touched. In the second place we have the fact that more exact and

detailed knowledge of the positions of parts that are touched, is acquired when an unusual amount of exploration is carried on by the part; as in the fingers of a blind man, who becomes able to read by touch. In the third place the fact that when a limb has been amputated, irritations set up in the remains of the nerves are referred to those remoter parts of the limb which no longer exist, joined with the fact, of which I have personal experience, that under certain abnormal conditions irritation of the end of one finger produces a sensation localised in the end of another finger, show that such consciousness of space as is implied by consciousness of places in the body, depends on the presence of those channels which convey impressions from the periphery of the nervous system to its centre. And once more, the fact that consciousness of position is determined by the inherited distribution of the nerves is conclusively shown by the well-known behaviour of a decapitated frog in using its limbs to push away a scalpel from a point that is touched.

Evidently these facts, along with numerous kindred facts, fall into their places as results which the process of evolution has necessitated; and they carry with them the implication that, in superior creatures, inheriting the effects of infinite experiences, some potential consciousness of space precedes experiences of things in space. Just as before birth the stomach implies food to be by-and-by swallowed, just as the lungs presuppose an environing air to be presently breathed, just as the lenses of the eye presuppose light-reflecting objects which are to have their images cast on the retina, just as the hand foretells a surrounding world full of things to be grasped; so do the nerve-centres which are to co-ordinate the actions of senses and limbs contain partially-organised adjustments to the external relations of phenomena; and so do certain of them contain structures in which there lies latent the apprehension of space-relations—structures requiring but a little exercise to complete them, and to change the vague potential consciousnesses of positions into definite consciousnesses. Obviously, too, there exist, partially-developed in these nerve-centres, certain universal necessities of action corresponding to certain universal necessities of relation; latent axioms, the truth of which is apprehended the moment their terms are clearly recognised. As, in the course of converse with the environment, a limb, habitually bent in a certain way, acquires a structure which prevents it from bending in an opposite way; so, perpetual converse with space-relations having a

fixed order, results in the formation of nervous structures which will act only in a corresponding order; thought in an opposite direction becomes impossible.

And here, indeed, we see that not only the Kantian hypothesis, but also the Experience-hypothesis in its original form, is found wanting when brought face to face with the facts of nervous organisation. What is the meaning of the brain? What are the meanings of the various ganglia at its base, their entering nerve-trunks, their commissures, their connexions with the cerebellum and the superjacent hemispheres? Is not the conclusion irresistible that these imply potentialities of established, or partially-established, nervous actions, with the corresponding established, or partially-established, modes of consciousness? If in the drum of the ear, the attached ossicles, the cochlea, the semi-circular canals, &c., we recognise appliances for reception of sounds, various in *timbre*, pitch, and loudness; then it is absurd not to recognise the correlative nervous centres as appliances for the apprehension of those sounds in their various qualities and relations; and it is similarly absurd not to recognise other parts of the brain as severally organised for the apprehension of other groups of related phenomena—organised most elaborately in those cases where the continually-inherited results of experiences have been most frequent and uniform, as in the relations of space. And on remembering that the potentialities of those modes of mind which we distinguish as emotions evidently exist in the infant, which now shows signs of anger, now of fear, now of pleasure, it becomes a still more irresistible implication that all the other modes of mind are potentially present as correlatives of structures more or less developed; and emerge from their vague forms into definite forms as fast as the structures evolve, in the same way that the fumbings of the hands grow into definite prehensions as the muscles and nerves of the hands become better organised.

The above sketch, which presents in a briefer and partly different way the arguments contained in the chapters on "The Perception of Space" and "The Perception of Body as presenting Statical Attributes," must of course be taken as a rude and simplified account of a process which is extremely involved. Further, it must be acknowledged that as we can never wholly free ourselves from our developed space-consciousness, it is difficult, when tracing out its genesis, to avoid including, at each stage of explanation, nothing beyond that which has been previously explained.

We have to contemplate the process of genesis as vicariously undergone; and have to verify the successive stages by reference to our own analysed experiences.

Even, however, were the developed consciousness of space so organically inwoven with every perception and thought as to disable us from even partially separating it, we might still be right in believing that it has been developed. For there are phenomena of consciousness which we cannot represent to ourselves as taking place, and yet which we know with perfect certainty do take place. We have an instance in the commencement and growth of consciousness in general. One who watches the early vague gropings of an infant which has "no speculation" in its eyes, must admit that there does not yet exist in it any appreciable amount of mind. Joining the testimony of parents with the implication of universal experience, he sees it to be an inevitable conclusion that he himself was once without any such coherent consciousness as that which he calls thought. Yet, if he attempts to go back to this stage, and imagine his mental state when he had no power to recognise things, he finds himself unable to do so. He is obliged to carry with him his mental habits, and to read into his earliest perceptions those processes of perception which have become confirmed. But this fact that in thinking about the genesis of his intelligence he cannot free himself from his intelligence, does not make him question the truth that he was once without intelligence. Similarly, then, with that consciousness of space which forms a part of his mental possessions.

Of course, the interpretation takes for granted the existence of objective space, or rather of some matrix of phenomena to which our consciousness of space corresponds. Manifestly, the hypothesis that a form of intuition is generated by converse with a form of things, necessarily postulates the existence of a form of things. With this admission, however, may be joined the assertion that the Kantian hypothesis tacitly, though unavowedly and inconsistently, makes the same assumption. When Kant said that "Space is *nothing else* than . . . the subjective condition of the sensibility," he, by implication, proved that in his mind there existed the thought of it as *something else*. If the consciousness of space is exclusively "the subjective condition of the sensibility," how could there have been suggested the thought of space as a "something else," the existence of which had to be denied?

It must also be pointed out that since, on the evolution-hypothesis, that consciousness of space which we have lies

latent in the inherited nervous system, and since, along with those first excitations of the nervous system which yield rudimentary perceptions of external objects, there are produced those first excitations of it which yield the rudimentary consciousness of the space in which the objects exist,—it must necessarily happen that space will appear to be given along with these rudimentary perceptions as their form. There will necessarily very soon result something like that inseparability which the Kantists allege. Hence we cannot expect completely to decompose into its elements the space-consciousness *as it exists in ourselves*. We can expect only, as above said, to trace the synthesis of it vicariously—to see whether, in conformity with the known laws of mental growth, we cannot put together the experiences out of which it has been evolved.

Much more might be added ; but if what has been said above does not carry conviction, neither would anything further. With those who have not yet thought about the question at issue, and with those whose judgments are in suspense concerning it, the foregoing arguments may have weight ; but they are unlikely to weigh with those who have espoused Transcendentalism. Though, when that original form of the Experience-hypothesis which ascribes all mind to the experiences of the individual is replaced by this developed form, which ascribes mind in chief measure to the inherited effects of the experiences of all antecedent individuals, we are enabled to understand how forms of intuition are produced by the moulding of thought during converse with things, the solution is, as already said, unacceptable by the neo-Kantists. Implying the production of mind by natural evolution instead of by supernatural endowment, it is at variance with that conception of the universe with which the supernaturalism is bound up.

Here, so far as I am concerned, the matter must rest. Controversies in general are of little use, and they are especially futile where there can be no agreement respecting the test of truth. It is useless to argue unless such a test is agreed upon ; and it is impossible for my opponents to accept my test (the inconceivableness of the negation), since, did they accept it, their doctrine would disappear at the first step.

II.—VOLKMANN'S PSYCHOLOGY. (I.)

By THOMAS WHITTAKER.

THE articles on Herbart and his successors, contributed by Mr. Stout to MIND during the last two years, have furnished English students of psychology with a convenient introduction to the work of the school which, in Germany, has the best claim to represent the science in its whole range. The generality of Mr. Stout's plan of treatment, of course, precluded him from going into detailed exposition of the work of particular writers of the Herbartian school. It has, therefore, seemed desirable that some more special account should be given of Volkmann's *Lehrbuch der Psychologie*.¹ For this treatise (see MIND x. 146, 476, and Mr. Stout's article on "The Psychological Work of Herbart's Disciples" in xiv. 353 ff.), while it is a representative work of the school, is also much more. As the most comprehensive psychological treatise yet written, and as at once systematic and historical, it is of especial importance to English students; for systematic comprehensiveness and historical treatment are less frequent in England than in Germany, and are, it will be allowed, seen at their best in the best work of German writers.

There are, indeed, some English psychologists who go much beyond this allowance; who are seeking to reform—if not to revolutionise—English psychology by ideas derived from the German schools. Along with these, Mr. Stout, in his comparison of Herbart with the English psychologists and with Beneke (MIND xiv. 1 ff.), appears to class himself, when he insists that the Herbartians have made important advances of general theory on English Associationism. Before beginning the exposition of Volkmann's great treatise, it will, accordingly, be well to consider briefly how far we must accept or reject Mr. Stout's contentions. In this way, it will, at least, be made clear from what point of view the present exposition proceeds.

Of the relation between psychology and metaphysics, Mr.

¹ *Lehrbuch der Psychologie vom Standpunkte des Realismus und nach genetischer Methode*. Von Ph. Dr. WILHELM VOLKMANN RITTER VON VOLKMAR, weil. o. ö. Professor der Philosophie an der Universität zu Prag, &c. *Des Grundrisses der Psychologie* dritte sehr vermehrte Auflage. 2 Bände. Cöthen: O. Schulze, 1884, 1885.

Stout appears to take the English rather than the Herbartian view. He, at least, makes no attempt to uphold Herbart's position that the fundamental principles of psychology admit of deduction from a theory of the nature of the soul. The nature of the soul, he would rather appear to hold, can only be determined after the psychological formation of the Ego in its distinction from the Non-ego has been investigated genetically. And, if he does not definitely proclaim his agreement with the position arrived at by Waitz, for example, within the Herbartian school, that metaphysics ought to be founded on psychology, and not psychology on metaphysics, there is nothing in his articles inconsistent with this view. Now this is understood to be the traditional English position. It is not at this point then, according to Mr. Stout, that any reform of English psychology is needed.

The most obvious point of contact between English Associationism and the Herbartian psychology is rejection of the 'Faculty-doctrine'. Here Mr. Stout thinks the Herbartians are a little more consistent than the Associationists. In his article in *MIND* No. 53, however, he, to a certain extent, mixes up the successors of Locke with the followers of Reid. But to show that there are traces of the Faculty-doctrine in a follower of Reid is not to show that genuine Associationism is affected by it. No doubt, it may be shown that Associational psychologists speak from time to time of mental 'powers' and 'faculties'; but, as Mr. Stout himself allows, these terms are used in a literary and not in a scientific manner. The English psychologists have seen that it is not necessary to be always parading their scientific apparatus. When they are merely describing mental processes, and do not for the moment aim at assigning their laws, they are content to use the ordinary terms of description. From the first, English psychology avoided hypostasising the names of groups of mental phenomena into causes of those phenomena. This—which is the 'Faculty-doctrine'—the Germans fell into, because their psychology was for a long time simply a branch of the Scholastic philosophy which continued to reign in Germany after the opening of the modern period. For Germany—though not for Europe—Leibniz made the first important advance beyond the Faculty-doctrine. The Herbartians, by much laborious polemic, were at length able to dismiss it completely; but they had been preceded by the English psychologists, who had avoided it by the instinct of genius; and, in the end, the Herbartian psychology could not be clearer of the assumption of 'faculties' as hypothetical causes than English psychology, which is absolutely clear of it.

Where Mr. Stout seems chiefly to think the Herbartian psychology superior to Association-psychology is, however, in what he regards as its more developed view of the "psychological mechanism". Herbart, he contends, has given a fuller account of the mind as a "mechanical system" than the Associationists. He does not apparently accept all Herbart's laws of "interaction of presentations," or his mathematical* treatment of this interaction; but he seems to think that the mere attempt at mathematico-mechanical treatment was, scientifically, an advance on English Associationism. If, however, the Herbartian attempt to explain the order and succession of mental occurrences did not really succeed except in so far as it involved laws of association (stated in a peculiar manner), it is difficult to see where there is any advance. And Mr. Stout does not in effect show that the Herbartians by their "mechanical" conception have been able to do anything beyond what has been done by means of the laws of association as ordinarily stated. The conception of the laws of mind as constituting a "mechanical system," on which he lays so much stress, is really a defect of Herbartianism, and not a merit. For, in fact, the mind is not a "mechanical system". This being so, the psychologists who do not call it one have an advantage over those who do, if only they can maintain equally well the scientific character of psychology. That the term "psychological mechanism" is a rather unfortunate one has been seen by members of the Herbartian school itself. Waitz, for example, in his *Grundlegung der Psychologie*, has very well put the objections to it. When we speak of "mechanism," he says (ed. 1846, pp. 140-1), we are accustomed to think of the laws of pressure and impact of masses of matter. Hence the term "psychical mechanism" is to be avoided. We should rather speak of a thoroughgoing determination of the mental life according to law, running parallel with the "organic and mechanical" determination of the corporeal world. For processes in the corporeal world itself, as Waitz goes on to indicate (p. 141 n.), are not all capable of adequate expression in terms of mechanism. There is a "phenomenal" opposition of the organic and the mechanical.¹ Now English psychology, while insisting

¹ Waitz's distinction might be applied within the organism, some parts of which have a kind of external "mechanical" relation to more "organic" parts. If we apply material analogies to mind, we may distinguish the more "mechanical" from the more "organic" mental processes. These may be supposed to be parallel respectively to cor-

on the determination of mental phenomena, keeps the distinction perfectly clear between determination according to law and mechanical determination, which is only one particular expression of scientific law. For its "laws of association" are always understood to be laws of mind, and not laws of material change,—whatever material changes may be the concomitants of mental associations. Thus, instead of English psychology needing a reform on Herbartian principles, the Herbartian psychology itself, by an internal advance, has tended to the English position.

But, it may be said, the really important point in the doctrine of the "psychological mechanism," and that which constitutes its advance on English Associationism, is its theory of the interaction of contemporaneous presentations, and of the existence of "unconscious" presentations among these. That this is a very characteristic point of Herbartianism may be admitted. And as the idea of unconscious or subconscient presentations was derived by Herbart from Leibniz,¹ it may plausibly be represented as a distinctive idea of German psychology. An investigation of the relations of Leibniz to his French or English predecessors might indeed show that absolute priority in the expression of the idea does not belong to him; but it remains true that it has hitherto been more elaborately worked out in German psychology than elsewhere. At a later period, however, the physiologists generally would seem to have come upon it independently of influences from any psychological school. It has certainly made its way into modern English thought apart from Herbartian influences; so that, whatever may be its history, we do not now need to go to Germany for the idea.

The notion of a mental "continuum" and its "differentiation," which to many seems so important an advance of the latest English psychology, whether it is specially Herbartian (as Mr. Stout contends) or not, has been arrived at, so far as it has any scientific value, on the ground of purely English psychology. Mr. Spencer's "vivid aggregate never known to be broken" and "faint aggregate never known to be broken" seem at least to be the clearest possible expression for the "presentation-continuum" and the "memory-con-

responding processes in the organism or the central nervous system. In this way we get a conception not altogether unlike the Stoical conception of the *ἡγεμονικόν*.

¹ See, for a detailed account of its derivation, a recent memoir by Dr. Johannes Barchudarian, *Inwiefern ist Leibniz in der Psychologie ein Vorgänger Herbarts* (MIND, No. 57, p. 146).

tinuum". These are represented as arising psychologically by differentiation; and we are told that "each set of states has among its members both a simultaneous cohesion and a serial cohesion" (*Psychology*, § 453). In this proposition it would be difficult to show what is wanting to the idea of continuity. If it is said that expressions such as "aggregate" and "set of states" show that Mr. Spencer is still at "the abstract point of view of English Associationism," it can only be replied (as it has been replied to similar arguments) that this "abstraction" is scientifically indispensable, and that Herbartianism proves its scientific character by making similar abstractions. For the Herbartians, in the main, work with sensational elements, from the relations of which they proceed to derive the actual continuity of the mental life.

What can really be maintained on behalf of the Herbartian psychology is that it is a genuinely scientific system, overburdened with mechanism as compared with English psychology, but more systematic and more elaborate. Volkmann's work adds to this the merit of being also comprehensively historical. The historical part of the treatise is a summary, equally valuable for reading and for reference, but hardly admitting of further condensation. A mere indication of its value must suffice. For the exposition of the systematic portions of the work, the best rule to adopt—from the point of view here taken—will be to reduce the Herbartian explanations as far as possible to their effective part by clearing away the superfluous machinery (including the term "psychological mechanism" itself). When thus reduced, they become associationist explanations. A general idea of Volkmann's actual procedure, however, must at the same time be given; and, to give this, some account must be included of his metaphysical deductions and of his specially Herbartian statements of psychological laws, even at the risk of occasionally repeating what Mr. Stout has already set forth. The order of exposition will differ little from that of Volkmann himself. Since, in accordance with the principles of his school, he aims at employing in his first volume chiefly the "synthetic," in his second chiefly the "analytic," mode of treatment, it will be convenient to finish the exposition of volume i. in the present, and to deal with volume ii. in a following article. There is, besides, as Volkmann points out, a natural division of subject-matter between the two volumes, connected, as will be seen, with the difference of treatment.

Psychology, according to the Herbartian view, is neither a purely "speculative" nor a purely "empirical" science. It has now reached the stage—towards which all sciences tend—in which it can be constructed both from experience and from metaphysical principles. It is empirical in that it finds its materials in experience—its chief experiential source being self-observation; speculative in that its laws are deduced from a metaphysical doctrine as to the nature of the soul. Its method is "the genetic method". That is to say, it traces the origin of mental phenomena from their elements according to the laws speculatively deduced. It is "synthetic" or "analytic" according as its explanations start with general laws and proceed to the construction of the concrete phenomenon, or start with this last as a problem and proceed to its resolution into those constituent elements and relations that have been already recognised as grounds of explanation. Thus the whole of psychology might conceivably be treated either synthetically or analytically; but actually the synthetic treatment is best adapted to the simpler, the analytic to the more complex, phenomena.

By "the standpoint of Realism," referred to in the title of Volkmann's work, we are to understand, not the realistic doctrine of the external world, but the Herbartian ontology, derived from the Monadism of Leibniz and expressly connected with it both by Herbart and his disciples. The Herbartian doctrine is called Realism as affirming a plurality of real beings, which form the ground both of mechanical and mental occurrence. For this doctrine, the soul is the simple and unitary real being that is "the bearer of presentations". The assumption of its unity and simplicity is required to explain the unity of consciousness as revealed in self-observation. To explain the origin of the plurality of presentations given along with the unity of consciousness, we have to think of the soul as connected in a system with other real beings. Such a system is formed by the real beings composing that which, physically viewed, is the organism. The interaction of these with the soul, or central real being of the system, is the ground of "presentation". When we abstract from the connexion of the soul with other simple beings and regard it merely as the simple being that is the bearer of presentations, we get the conception of "mind". The "mind," as such, is outside all relations of space and time. The "soul" is in a certain body, and is in that time in which its presentations are produced.

The question of "the seat of the soul," in the sense in which it is permissible, is a physiological question. For its

solution Volkmann adopts the physiological hypothesis of a "focus" of the nervous system, in which not the nerve-fibres themselves but all nerve-excitations meet,—“a (fixed or changing) point of convergence of all waves of excitation”. At this central point of nervous activity we have to place the “bearer of presentations”. Thus the physiological and the metaphysical views are brought together. The point of convergence of excitations in the brain may be spoken of as “the seat of the soul”. On the ground of a continuous series of analogies a soul is to be assumed in the lowest animals, but not in plants, these not being sufficiently centralised.

States of the soul, that is, presentations, necessarily arise in consequence of its interaction with the system of real beings constituting the organism. A “presentation” may be defined as “the simple state of the soul in which this brings to expression its opposition to the reals with which it finds itself in immediate or mediate connexion”. The presentation (*Vorstellung*) is related to presentative activity (*Vorstellen*) as the product to the process. The presentation with its presentative activity is not to be thought of as something separate from the soul. On the contrary, the soul is that which is active in the presentative activity, and of which the presentation is the development. The special quality of a presentation—within its general psychical quality, which belongs to it as a state of the soul—depends on the quality of that real element whose connexion with the soul occasions the presentation. This dependence, however, is no “mirroring”. The true conception of the presentation lies between two opposite errors,—that which makes it a mirroring of the external thing, and that which makes it a self-evolution of the mind or of a mental “power”.

A presentation, having once come into existence in consequence of an entrance of real beings into a certain combination, continues to exist after the disappearance of this combination. One presentative activity may fall into conflict with another and become “bound,” but the presentation is not lost to the soul. It only has its activity suspended so long as it is “bound”. The “paralysed” activity has been transformed into presentative “effort,” which may at any time overcome the obstacles that temporarily bind it.

The conception of the Presentation as arrived at metaphysically coincides with that of a perfectly simple Sensation. But while sensation as theoretically deduced is a state developed by the soul on occasion of the stimulus con-

veyed by a single primitive fibre, sensation as empirically observed is always a complex total state proceeding from numerous elements opposing or balancing one another. We must call the relatively complex states beyond which experience does not carry us "presentations" or sensations; making at the same time the reservation which the metaphysical deduction of the true presentation as simple state requires.

Sensation as presentation has its "content" or "quality"; as presentative activity its "intensity" or "quantity"; as union of elementary states its "tone," determined by the interaction of its elements. The content of a sensation corresponds to but does not resemble the quality of the stimulus that is its occasion. The quality of the stimulus has for its conditions on one side objects with changing qualities, on the other side an organ of approximately constant character. Among the psychological circumstances influencing intensity of sensation is attention; among the physiological circumstances, prolongation of the stimulus and diffusion of it over the organ, freshness of the organ, &c. By the tone of a sensation is meant the fact of its appearance with the consciousness of "furtherance" or "hindrance". The consciousness of hindrance is pain in its various degrees; the consciousness of furtherance pleasure. Hindrance and furtherance are to be understood with reference to the relation between the stimulus and the existing state of "tension," which depends on interactions within the organism. What is hindered or furthered is the resolution of a tension. Since every furtherance supposes a previous hindrance, every "resolution" a previous tension, pain is the primary, pleasure only the secondary, phenomenon of tone. Thus consciousness of tone is not consciousness of a particular felt content, but is a consciousness of the process of feeling as determined by interaction of one element with others. Between determinateness of content and strength of tone there is an inverse relation. There are no absolutely toneless, as there are no absolutely contentless, sensations.

Under the head of intensity of sensation, Volkmann gives some account of the investigations of psychophysics. Proceeding to discuss in detail the "kinds of sensations" as determined by their reception from different sense-organs, he describes in order the results attained as regards Sight, Hearing, Smell, Taste, Pressure and Contact, Muscular Sense, Sense of Temperature (Heat and Cold), Corporal Sense and Coenæsthesia. The "tactile sense" is found to be properly a combination of two sensations of different classes, *viz.*, pressure and muscular sensation. It is, how-

ever, entitled to rank separately, both on the psychological ground of the intimate union of the two heterogeneous sensational qualities, and on the physiological ground that the parts most sensitive to touch do not coincide with the parts most sensitive to pressure. Sight and touch are characterised by comparative slightness of tone. The muscular sensation is the "feeling of innervation". Physiologists, not altogether wrongly, oftener speak of "muscular feelings" (*Muskelgefühle*) than of "muscular sensations" (*Muskelempfindungen*); for the sensation, as a complex, has something emotional in it. The tone of the muscular sense, that is to say, goes beyond the limits of the ordinary "tone of a sensation," and approaches "feeling" properly so-called. The "corporal sense" includes a great number of disparate senses, characterised by prominent tone even when their intensity is low. It may, perhaps, be an aggregate of residues, retarded in development, from the primitive total sensibility out of which the special senses have become differentiated. The common organic sense, or coenæsthesis—which ought to be called "organic feeling" rather than "organic sensation"—is the total impression of all contemporaneous sensations. It consists of unlocalised corporal sensations (sometimes identified with it); sensations of temperature and pressure so far as they are less toned and appear in greater masses; muscular sensations so far as they remain isolated; sensations of tension or "disposition" of the organs of sight and smell; odours and tastes and (rare) colour- and sound-complexes that are brought into relation with no determinate object of the external world. The common organic feeling is "the psychical expression of the life of the body," "the somatic basis for the unity of self-consciousness".

Movements, *i.e.*, bodily motions conditioned by stimuli of motor fibres, are divisible into Actions, Instinctive Movements and Reflex Movements. The ground of excitation of an action is a determinate act of will; of an instinctive movement, some other psychical activity; of a reflex movement, some nervous stimulus outside the soul. An instinctive movement, accordingly, may have for its stimulus either (1) a presentation or (2) a feeling. Since presentations can only set movements going by the intermediation of associated muscular sensations, and not, like feelings, directly; and since the muscular sense has itself the character of a feeling; the difference between the two kinds of instinctive movement is not "specific". The second class of instinctive movements shades off into reflex

movements. The explanation of the first is essentially similar to that of voluntary movements ; the essential thing in each case being the production of appropriate muscular feelings in sufficient strength and precision. Voluntary, instinctive and reflex movements, as Volkmann shows after earlier psychologists, may be transformed into one another in either direction.

Fuller treatment of Instinct as well as of Will is postponed to a later division of the work ; but as a supplement to his account of the motor elements of the mental life, Volkmann sets forth the theory of the origin of Language. Words, he finds, were originally the product of an instinctive movement of the second kind, that is, of the kind that has feeling for its stimulus. A sound uttered under the influence of an emotion, as soon as it calls up in the mind of the hearer the idea that is in the mind of the speaker, becomes a true "word," that is, a sign, having hitherto been a mere "natural sound". Emotion, having performed its part in facilitating utterance and understanding, is eliminated, and the instinctive movement exchanges the form of the second class for that of the first. Finally, as the various series of ideas and movements fall under the dominion of the will, the utterance of words becomes an "action". Before the first, or "pathognomic," period of word-formation is completed, the second, or "onomatopoetic," in which sounds that are heard influence the formation of words, has begun. After the first two periods—the period of the "natural sound" evoked by something that excites emotion and the period of "imitation of nature"—comes the third, which has been called the "characterising" period. Its activity consists in finding the sides of new impressions by which they may be brought under the categories of old, already fixed presentations. It is further considered by Volkmann in his view of the Concept.¹

The Herbartian theory of "the interaction of presentations" is in essentials adopted by Volkmann, but not without differences of theory and of terminology. Volkmann, for example, speaks of the "fusion" of heterogeneous presentations, while Herbart calls their union "complication," confining the term "fusion" to the union of homogeneous

¹ With Volkmann's acceptance of the position that the uttered sound becomes a "word" from the moment when it is *understood* may be contrasted Wundt's position (*Phys. Psych.* 2nd ed., vol. ii., p. 438) that language is constituted by the *intention* to convey a certain meaning ; that it exists from the moment when the original "impulsive movement" becomes a voluntary movement.

presentations. The term "threshold" employed by Herbart as a name for the limit below which presentations sink when they become "obscured," Volkmann rejects. He maintains the ideas of "mechanical" interaction of presentations and of the application of mathematics to this interaction; but he is willing to allow that the results of mathematical calculation are not always empirically verified. The concluding section of the first volume contains, indeed, considerable admissions as to the Herbartian "mathematical psychology," and may almost be taken as a confession that the experiment of applying mathematical calculation to the interaction of mental states, though worth trying, has not yielded the definite and verifiable results that were looked for.

The starting-point of the theory of Interaction is the notion of "a plurality of simultaneous presentations". The simplicity of the soul, it is maintained, is not inconsistent with the separate origin of simultaneous presentations; but it is quite irreconcilable with their continued separate existence. The fundamental law of the interaction of presentations, therefore, is: Simultaneous presentations fuse. Presentations may be either "like" or "opposite" or "heterogeneous". The fusion of like and of heterogeneous presentations offers no difficulty. The difficulty is to explain the fusion of opposite presentations. Its solution is contained in the proposition: Simultaneous opposite presentations arrest one another and then fuse; that is to say, they put out of action so much of their presentative activity as opposes union, and unite the rest in a total act. This leads to the Herbartian theory of the mutual "arrest" of opposite presentations and of the fusion of "residues". The application of mathematics in working out the consequences of arrests and fusions depends on the distinction of intensity (or quantity) from quality of sensation, and on the numerical expression of "degree of contrariety" as well as of intensity. To consciousness, "arrest" announces itself as diminution in clearness of presentation. The degree of arrest is measured by degree of diminution of clearness. When the whole activity of a presentation is bound, the presentation is said to be "obscured". The intensities and degrees of contrariety of the interacting presentations being known, and the relations of these quantities to the total arrest and to the arrest falling on each separate presentative activity having been formulated, the conditions of obscuration are calculable. Sensations, since they are composed of simple states, are determined in their internal as well as (approximately)

in their external relations, according to the laws of fusion and arrest. Simultaneous heterogeneous presentations fuse into a total presentation—the “complex idea” (as Volkmann remarks) of English psychology. This means that their presentative activity becomes a “total presentative activity” while they themselves persist in their qualities and degrees of clearness. Of total presentations those are said to be “complete” (*vollkommen*) whose constituent partial activities enter into union unarrested. When these have been deprived of some of their intensity by arrests, the total presentation is said to be “incomplete” (*unvollkommen*). Under favourable external circumstances the incomplete total presentation may become complete. Partial presentations of the same total presentation are to one another “aids”; that is to say, they support one another in the bearing of the arrest. The gain by fusion is greater for the weaker than for the stronger partial presentations of the same total presentation. Older presentation-complexes, in consequence of their “internal rest and consolidation,” have an advantage over presentations that have just entered consciousness.

Arrest and fusion are, in reality, processes. They do not take place all at once, but gradually. The presentation, therefore,—or rather the presentative activity,—is said to have a “motion”. This admits of only two directions, *viz.*, “rising” and “sinking”. All motions of presentations take place between the highest point of the original activity and zero; the possibility of rising only exists for a presentation that has sunk below its original intensity. Comparison of the motion of points in space with the “motion” of intensities of presentative activity shows that the velocity in the latter case is always to be thought of as diminishing. The motion of a presentation can be completed in no finite time, but a presentation may be obscured in a finite time. For if the lowest point to which the presentation must sink, in order to reach the limit of its motion, is below the limit of its activity—that is to say, if its share in the arrest is greater than its own original activity—then the presentation needs, indeed, an infinite time to reach the lower limit of its motion, but passes its own limit of intensity, the horizon of its consciousness, in a finite time. The laws of motion naturally become more complicated when presentations are supposed to arrive successively, instead of simultaneously. A presentation may be kept indefinitely near its maximum by the persistence of a physical stimulus or by the activity of psychical “aids”. The term “fixed pre-

sensation" is applied to a sensation indefinitely near its maximum and sustained at this height by persistence of the stimulus.

At the end of his treatment of the interaction of presentations, Volkmann has a section on Sleep. The somatic conditions of sleep, he finds, are (1) isolation of the brain from the other parts of the nervous system, both on the side of external stimuli and on the side of innervation, and (2) disengagement of peculiar corporal sensations in the soul. These sensations, marked by low intensity, great number, increasing "fixation" and a high degree of contrariety to homogeneous presentations, exercise pressure on these directly and indirectly on all others; thus adding their positive influence to the negative influence of isolation in bringing about the general obscuring of consciousness characteristic of sleep. In sleep as a process five stages are to be distinguished—"sleepiness, going to sleep, deep sleep, sleep with dreams, waking". In deep sleep "the light of consciousness has scattered itself upon so many atoms that it becomes in each a vanishing quantity". The subject of dreams is resumed after the principles of the theory of reproduced presentations have been set forth.

The return of the obscured presentation into consciousness is called its Reproduction. The reproduction of a presentation takes place by suppression of the arrest that obscured it; and thus either "immediately," by its own force, on the disappearance of an opposite presentation, or "mediately," by the force of an aid, in spite of opposition. As the mediate reproduction of one presentation has the immediate reproduction of another, namely, the "aid," for its presupposition, immediate reproduction is the simpler case.

There are two forms of immediate reproduction. The first form occurs when a presentation is reproduced, not because of the entrance of a new presentation which removes the arrest, but because of the disappearance of the opposition from other causes. This disappearance may be due either to withdrawal of a stimulus or to cessation of an act of voluntary attention. In either case, the returning presentation is called a "freely ascending presentation". On account of its velocity's becoming gradually less in the measure of its ascent, the freely ascending presentation never quite reaches its maximum height. It usually remains far below the maximum. The second form of immediate reproduction has its ground in removal of the opposition by the entrance of a new presentation qualitatively like the obscured presentation. The arrest due to opposition

being removed, the obscured presentation ascends by its own force.

The second of the two forms of immediate reproduction may be found by self-observation in the phenomena of recognition. The theory of freely ascending presentations, on the other hand, contributes to the explanation of reverie, and enables us to take up again the thread of the phenomena of sleep at the point where it was dropped. When the "somatic pressure"—the arrest due to the corporal sensations disengaged during sleep—is taken off a limited region of the psychical life, the obscured presentations belonging to that region are set free to ascend. Their ascent constitutes a Dream. Dreaming is thus a partial waking, which ends with complete waking when the pressure taken off one circle of presentations is taken off all. In waking life, on the other hand, to be completely given over to a single circle of presentations has something dreamlike in it. Another element of dreaming is introduced by those corporal sensations of which the stimuli break through the isolation of the central organs from the periphery. This breaking-through disturbs the motions of the free presentations, and is most prominent in morning-sleep. Dreaming, according to Volkmann, has a certain advantage over the waking state in its internal unity; the presentations of a dream appearing in their intrinsic relations, and detached from the accidents of daily life. This, in his view, explains the "prophetic significance" of some dreams. At the same time, by reason that the pressure of *cœnæsthesis* is only taken off a single circle of presentations, dreams have a characteristic one-sidedness, resembling the life of animals, with their more limited range of sensibility as compared with man, and the predominance in them of particular senses. Somnambulism is best explained as a morbid exaggeration of this one-sidedness.

The ascent of one presentation—however determined—has for its consequence the raising of all presentations fused with it. Thus, when one partial presentation is immediately reproduced, the mediate reproduction of the total presentation follows. In general, the mediate form of reproduction is behind the immediate as regards both velocity and height; the more so as the mediately reproduced presentation ascends not in consequence of the yielding opposition but in spite of the opposition that has not yielded, and as the arrest that is thus unavoidable lowers both the velocity of ascent and the maximum height. When both modes of reproduction work together to raise the same presentation, the presentation ascends not with the accumulated velocities but with that

which is the greater, because in the fulfilment of one motion satisfaction is implicitly given to the demands of the other. The law of mediate reproduction furnishes the basis for the theory of "signs"; for sign and thing signified are heterogeneous; what holds them together is "fusion".

The correspondence of the theory expounded above to the doctrine of Association of Ideas is pointed out by Volkmann, and is indeed sufficiently evident. The second form of "immediate reproduction" is of course "association by resemblance," while "mediate reproduction" is "association by contiguity". Volkmann contends that the Herbartian method of formulation is preferable to the English, because it begins with the problem of obscuration, instead of inquiring into the conditions of the return of the presentation before those of its disappearance have been understood.

After setting forth the general laws of the reproduction of presentations, Volkmann enters into the doctrine of the "presentation-series,"—defined as "a presentation-complex which, in consequence of orderly fusions of its constituent parts, possesses the capability of raising these, during their reproduction in determinate order, to their full degrees of clearness". The serial form may be described generally as the form in which successive presentations are reproduced when their succession is not too slow, and when there is not too great want of uniformity in the qualitative relations of the successive terms. Simultaneous presentations, as well as presentations originally in serial order, may assume, when reproduced, the form of a series. For this to take place, there must be regular gradation of degrees of fusion; and this appears in similar presentations when, with identical quantity, their qualities are separated by a regular gradation of degrees of contrariety. The form of a series is assumed, for example, by colours, tone-qualities and logical species of the same genus. Series of which the repetition merely by reproduction is possible become shortened with time; series that have to be reconstructed on each repetition become lengthened by the taking in of details at first overlooked.

Each pair of fused presentations may be compared, as a structural unit, to the organic cell. Similarly, the presentation-series may be compared to the organic fibre. Series, like single presentations, arrest one another so far as they are opposed, and support one another so far as they are like or fused. A series may consist of subordinate series. Series are "divergent" when they have the first term in common, "convergent" when they have the last term in common;

when they have an intermediate term in common they are said to "cross". If a series leads the way to divergent series, it is said to "divide"; if it follows the convergence of series, the converging series are said to have "united" in it. By the insertion of intermediate series, crossing may be avoided. Series may become interwoven into "tissues". Examples of such interwoven series are the arrangements of colour-series in a surface, of concept-series in a science, of the series of particular sciences in the scheme of universal knowledge. These "tissues" made up of presentation-series are comparable to the tissues of an organism.

In the course of the treatment of Series, an explanation is given of the fact that the longer a presentation has been obscured the more difficult it is to reproduce. The explanation is this: Voluntary reproduction does not as a rule come directly upon the presentation to be reproduced, but has to call it up by series of "aids". Now, the longer the time during which the presentation has been obscured, the greater is likely to be the length and complication of the series of steps by which it must be arrived at; and so the more difficult it is to reproduce. For immediate reproduction, the length of the period of obscurity is irrelevant. Hence, if voluntary reproduction can take this form, there is no difficulty depending on the length of time that has elapsed since the presentation was obscured.

"Sensation" and "reproduction," as has been seen, are names given to different periods in the history of the same presentation. The presentation is called a sensation from its development to its first obscurity, a reproduction from its return into consciousness to its next obscurity. What, then, are the empirical characters by which these phases of the presentation are distinguished? In other words, what is it, psychologically, that the continued presence of the somatic stimulus confers upon the sensation? The difference between sensation and reproduction cannot be in the quality or content, which is the same in the two cases. The "weakness" of the reproduction in comparison with the sensation, its falling off in clearness, which was taken by Hume as the criterion, is not sufficient. It is, in Volkmann's view, the greater tone of the sensation as compared with the reproduction that constitutes its most distinctive character. In the reproduction, the tone, so far as it depends on relations of the elements of the sensation to one another, has almost disappeared. The reproduced presentation, as feeling, is no longer pleasant or unpleasant, but indifferent, until it has formed for itself a new pleasurable or non-pleasurable feeling by interaction with other presentations.

If we call that property of the sensation that proceeds immediately from its tone, or mediately from accompanying organic sensations, its "liveliness," then want or diminution of liveliness is the criterion of reproduction as opposed to sensation. Liveliness is to a certain extent communicated to the presentations reproduced by a sensation. A second character distinguishing sensation from reproduction is that the sensation is "fixed" by the stimulus, that it persists in opposition to the will. Only of secondary importance for the distinction of sensation from reproduction, this character becomes of more importance for the distinction of the reproduction of a sensation from the reproduction of a reproduction.

The account of reproduction as a psychological process concludes with a discussion of Memory and Imagination. These, Volkmann points out, are not to be viewed as "total forces" by which "the mind" calls up particular phenomena. The question for the psychologist is, What are the real processes of interaction of mental elements to which the terms are, respectively, applicable? On any view, the contrast between (1) the tendency for presentations to be preserved in their original integrity and fusions, and (2) the tendency for them to be set free from their old combinations and placed in new ones, has to be recognised. From the point of view of the theory of interaction, therefore, every presentation may be said to have its "memory" or its "imagination," according as it strives after the recovery of old or the formation of new combinations. Traditional terminology being used, memory may be divided into "memory in the narrower sense," or the striving of presentations after immediate reproduction, and "recollection," or the effort of a presentation to bring others to mediate reproduction; both being included under "memory in the wider sense". The classification (proceeding from Kant) of memory into "judicious," "ingenious" and "mechanical" also admits of interpretation in the Herbartian sense. It is especially in the fusions of "freely ascending presentations" with one another that the new combinations of imagination are formed. The characteristic of imagination is "newness"; but a whole becomes new either by leaving aside of old or by addition of new parts or by union of both processes. This gives the division of imagination into "abstracting," "determining" and "combining". Imagination does not receive its true life and colouring till it comes under the influence of emotions and desires. Under this influence it rises into "Phantasy".

The exposition will be resumed with Volkmann's second volume.

III.—THE LOGIC OF THE ETHIC OF EVOLUTION.

By WILLIAM MITCHELL.

I.

THE Ethic of Evolution is usually so much concerned with exhibiting its ability to harmonise the traditional conflicting answers to various questions that it is apt to forget the reason that gave birth to them and the purpose which their solution ought to accomplish. The direct problems of any science require answers to many questions that do not directly concern it; and the primary problems of so complex a thing as human conduct require the solution of many subsidiary matters. In the history of ethics it has often happened that these subsidiary questions have appeared to be the whole matter of investigation, and, as often, it became very natural to aim at harmonising the answers that were given. But the harmony must be shown to give a fact or postulate to ethics, as the conflicting answers sought to do, in order that it may not be merely an abstract statement of the common—and, therefore, unessential—element in them. I propose in this paper to emphasise the logic of ethics which sets the questions to be answered, and to examine the answers that are given in what is usually regarded as the ethic of evolution.

The logic of ethics is the logic of every practical or constructive science. Inductive logic is concerned with the relation of cause and effect, and the various methods of getting at the actual causes and effects in the complex sequences which we have in nature. As this relation is to be found in every sequence, and everything is in sequence, a science based on this relation alone can be found for everything,—the operations of minds, as well as the operations of nature. But there is another relation in certain of these operations as well as causality. The operations of intelligence have put quite a new face on nature from that which it would otherwise have had. This is due to the selection of desirable effects; and, therefore, also the selection of causes to produce them. A selected effect is an end, and the means are the causes required to produce it. The question does not here concern us whether or not intelligence and its operations on nature are themselves natural

products. The point simply is, that intelligence is able to discover ends for institution in nature, and to realise them wherever the requisite means can be found.

The logic of the constructive sciences is, then, the logic of end and means; and it requires, in the first place, that the end be desirable, and, in the second place, that its realisation be possible. The relation of causality is, of course, implied in that of means and end; but it is a fatal error to give the final explanation of morality under this category. To take a precisely analogous instance from another constructive science, we might explain every principle and detail of the Forth Bridge at infinite length by reference merely to the physical and chemical laws of nature, whereas the essential thing is the selection of them. Hence, the true logic of the ethic of evolution is concerned with the selection—the natural selection—of human characters and institutions,—a selection which, when properly interpreted, is expected to reveal the rational ground of selection for all future practice. Except to the systematic writers on the subject, however, the essential matter does not appear to be this, but the apparently wonderful fact that morality has varied indefinitely for different circumstances and peoples. Several conclusions are usually supposed to be given by this discovery, and of these I select the two that affect the logic of ethics. The one is, that, as the knowledge and practice of morality have varied and will continue to vary, morality cannot be absolute, and a science of morality which exhibits it as permanent is essentially erroneous. The other is, that the true method of ethics is to adopt, with the other sciences, the rule, Be true to nature, and to build a system from the facts that history has revealed, instead of pursuing the old way of making facts square with a theory of which they ought to form the test.

The former of these statements,—that, because morality is relative to character and circumstances, the theory which represents it as absolute is necessarily erroneous,—is due to a confusion which at once reveals itself if we consider the general case of all truth. If morality is said to be relative to character and circumstances, all truth must be said to be relative to the same extent and for the same reasons. But it is a very obsolete kind of scepticism to say that, because opinions have varied about what is true, truth is not absolute, or cannot be known for certain. If men can be thoroughly convinced that their errors are truths, why should it be wonderful that they have erroneous convictions about moral actions, since these form only one of the cases

of the general fact? Truth itself is permanent; it is only the consciousness of it that varies and develops or is evolved. Therefore, although the knowledge and exercise of morality have changed and grown, it is not to be inferred that there is no true or permanent system of practice. The consciousness of all truth depends on the intellectual character and its environment or means of investigation, just as the consciousness of moral truth depends on moral character and circumstances. But if it does not follow in the one case that there is no criterion to test the truth of our knowledge, why should it be inferred that we cannot discover the permanent truth about the laws of human actions? It may very well be argued, as by Mr. Spencer, that the true system of morality can only be incompletely discovered and imperfectly realised till an ideal future time; and that, meantime, ethics is relative to non-moral limitations. But this, so far from denying, asserts an absolute system of morality, and the question of the possibility of realising it is one of the two matters which, as we saw, logically fall to be investigated.

The second popular statement presents a similar confusion. It points the moralist to the abundant facts of morality that historical and biological research has accumulated, and asks him to adopt the rule of being true to nature—by which the natural sciences have developed so greatly,—in order that his theory may be based on fact, instead of fact on the theory. Now, in the lower animals the self-regarding and the species-regarding impulses appear in harmony—to, at any rate, as great an extent as the members of either kind of impulse harmonise with one another. Such animals are true to nature,—to the nature they have received. But the necessity for a doctrine of morality just arises because in man the self-regarding and the species-regarding causes of action have come to consciousness and appear in conflict. In primitive races, where the distinction is little marked because instincts are little questioned, the instinctive rules of right are held on the assumption of the harmony, if not identity, of these kinds of impulse. Similarly, it is the rule among civilised peoples that the traditional rules of conduct are instinctively rather than rationally accepted. These savages and socialised peoples are also true to nature,—to the nature they have received,—and make their lists of the laws of morality from data that they have merely accepted. But to elevate this procedure to an ethical method is to make it impossible for morality to have a logical foundation at all. The rule, Be true to nature, appears so excellent and easy that there is nothing more tantalising than the glibness with

which the censors of the progress of knowledge urge it on philosophy. The nature to which the moralist must be true is not given, and the nature that is given is just the nature that he must correct. In the given nature, no doubt, lie the means for realising that which ought to be ; but the selection of the means is the very problem that the moralist has to solve. It follows, as every student of moral theories knows, that, so far from alleged facts or beliefs determining the theory, it is rather the theory that has read or determined the fact. And, so far from this apparent reversal being illegitimate, it is the only logical procedure. Not, as I have repeated, that men and society may have any possible constitution ; but neither also that the constitution which they ought to have is to be directly selected or inferred from that which we find them possessing. A comparative examination of the varieties of morality—including, if you like, the practice of the lower animals—cannot give the laws of morality as it ought to be, without implicitly asserting a theory concerning the grounds of selecting and valuing one kind of action to the prejudice of another. For the different determinations of morality that we find among various peoples at various times may in this reference be described as the more or less instinctive compromises which men have formed to mediate the claims of the self-regarding and the species-regarding impulses. We may collate these compromises to find the elements of success and the causes of failure, but we can find nothing to the purpose without having first answered the question, in what success and failure consist.

Thus the dictum, Be true to nature, does not furnish the data and criterion to ethics—or, indeed, to any of the constructive sciences—as if it were merely analytical. In all these sciences a selection is made in view of an end, and the dictum simply implies that the end must be such as the means can realise. In this sense the ethic of evolution may properly enough claim to make a better adherence to nature than other theories,—say, than the two traditional antithetical doctrines. Thus Mr. Spencer contrasts his method with Utilitarianism in treating happiness as a necessary, not an accidental or empirical, product ; and Mr. Stephen opposes himself to Kant, who regards the law of morality as something to which the nature of men and things in this world cannot be accommodated. But this only shows more clearly the necessity of a strict adherence to the reasoning of the constructive sciences,—the logic of end and means. Let us consider, then, in the first place, what constitutes the

desirability of the end proposed by this theory, as the end of human practice ; and, in the second place, how its realisation is possible.

II.

The purpose of ethics is the discovery of a system of laws which ought to be accepted by each and all for the regulation of their conduct. Two things are thus required. In the first place, the laws must be deduced from, or justified by, a common ground, embracing the relations of which they are supposed to be the true expressions. In the second place, this system of laws must recommend itself to individual agents in order to be the motives of their actions. Every ethical theory that is not professedly sceptical undertakes to satisfy these two conditions. About however many courses of conduct they may severally confess themselves in doubt, they all profess to give the principles which will remove the difficulty. And however some theories, including that we are considering, disclaim the possibility of recommending their laws to men of imperfect character, they all profess ability either to reform or to eliminate such characters.

The division which from the first separated moralists into two general classes is due to the difficulty of harmonising the two requisites mentioned. The one school began by making morality absolute or universal, and then found its difficulties in converting the universal rules into personal motives without the introduction of an extraneous *tertium quid*. The other school, beginning by saying that the only thing one desires is pleasure, found its difficulties in formulating a universal system of conduct that would always be the means of realising this desire. Now the ethic of evolution claims to overcome the difficulties of both schools, and, in doing so, to remove the hypothetical character of the ethical postulates. In other words, it professes to satisfy the two conditions of the possibility of morality, and thereby to convert this possibility into an actuality or law of nature. The previous moralists erred, it says, in neglecting to investigate the causes, and especially the relative character, of pleasure. The rational moralists, it would say, merely found that virtuous action is always attended with happiness, and could only regard it as an unfortunate fact that men found wrong actions also to be desirable. The utilitarian school, too, it says, accepted pleasure merely as a result, and, failing to investigate its cause, left the estimation of pleasure to an empirical and nearly impossible calculation.

It is questionable if the ethic of evolution has added much to what was previously known of the causes of pleasure, but its investigation goes far enough to accomplish the essential purpose, *viz.*, to pass from pleasure to what *ought* to give satisfaction as the criterion. Thus, it is the optimistic argument of Mr. Spencer that the virtuous action is the happy one, since the right course is that which, having survived the struggle of contending courses, has been longest in operation, and since pleasure attaches to the exercise of any function that has been sufficiently long exercised. This short and easy method with the pessimist no doubt requires many a qualification; but there is left untouched this truth—that pleasure accompanies the exercise of every function that has come to be incorporated in one's character, so far as its exercise is unimpeded. Now, if the action of society is to eliminate all characters that are inimical to itself, it follows that, *ceteris paribus*, those pleasures are better which attach to functions whose exercise receives no check at the hands of society, and those are best of all which attach to a function whose exercise society not merely admits but rewards. The conditions, then, of an absolute or universal morality recommending itself to individual agents are satisfied by making the ethical end a perfect character acting in a perfect social medium. A perfect character is one that, in the first place, consists of harmonious desires only, and, in the second place, possesses the full complement of them. A perfect social environment is one that, in the first place, has no element contradictory to the exercise of a perfect character, and, in the second place, directly fosters such exercise. It is a far cry, however, to the institution of this character and medium in which benevolence will tend to be more selfish than selfishness itself. Consequently, for men as they actually exist the argument takes a more modest form. So far as a character conforms to its environment, whether good or bad, so far the pleasure which it can gain is greater than if it did not, other things being equal. An environment and character are better, then, the nearer they approach the perfect condition. If a man's character be bad—if, that is, he have little desire for the objects which society approves, and find the pleasures which it condemns most desirable—morality cannot recommend itself to him by its pleasure-giving qualities. Yet he cannot but admit that the moral course is best for those who can take advantage of it.

The proposed end, then, does not require to be placed in the distant future, or to justify itself by proving that it is

what things will come to. This is, no doubt, how the matter is frequently represented by Mr. Spencer, and the criticism of his theory has usually been made on these two grounds. But others—and, notably, Mr. Stephen—propose to satisfy the two conditions of the end without placing it in a hypothetical future, or justifying it to us for the sake of our grand-children in the n^{th} generation. The improvement of the tissue of the social organism, whereby better characters and a better environment are realised, really satisfies the conditions. It dictates an absolute system of moral laws, and shows the realisation of them to be pleasant for the characters that are equal to it. The theory sets a very awkward limit, indeed ; but this does not concern the end, but the means of realising it.

An ethical end must not merely recommend itself, and imply a universal system of morality : it must be capable of supplying a criterion for particular courses of action. It cannot accomplish this if it abstracts from the reference to any of those elements for which it proposes to prescribe the laws. Though the progress of knowledge may be said to be by generalising, this is the lesser half of the truth of which the other is that we generalise in order the better to particularise. A theory, then, that does not regard men in abstraction from their environment, as if it were accidental, may so far be expected to state more concrete—and, therefore, more serviceable—laws than theories which do. The medium of life is an essential part of life itself, so far as no other medium would do equally well. Similarly, the laws of morality, which are the maxims of a perfect character, must contemplate the medium which renders their action possible. Now, though all theories claim to do this, they do not all represent the good of society as itself an element in the end for every man and not merely a means to it. The ethic of evolution, however, urges the individual to act for the good of society, not because he cannot otherwise reach his own best good, but because this is itself absolutely desirable. In a manner comparable to Kant's conception of a kingdom of ends, it seeks to co-ordinate the individual and the social good, and commands the agent to acknowledge the obligation of acting for the good of society, however little it promises him. The reference for the individual is never to what he desires, but to what he ought to desire ; and moral laws are established when it is shown that by their means the social tissue is maintained and strengthened.

Unfortunately, this is usually read as if man existed for society, and not society for him. It appears all the more

strongly when this view of morality is justified merely by reference to the non-moral condition of animals, in which the species is maintained by the sacrifice of individuals. But to the moral being—to one who claims the right of bringing all ends and motives to judgment—even this end of the maintenance of the species must appear not as an external condition or arbitrary rule, but as an object of desire. It is only in this way, too, that such problems as the treatment of the weaker members of the community can be made adequate. It is frequently argued, in opposition to the theory, that, if the good of society is the criterion of right, the proper treatment of the poor, the ignorant and the diseased, is to make their lives as difficult as possible, by letting their affliction exercise its full effect. To reply that this would weaken the moral fibre of the others is either to say that it is a pity the moral law cannot be properly enforced, or to admit that the law is not adequately expressed by this criterion. If it had any force, the argument might be added that a struggle for existence does not express the relations even of non-moral animals to one another within the same species, since they expend energy in support of members which cannot be supposed to give an adequate return for the benefit of their kind. I have pointed out that this is no reason in the world why *we* should support the weak, if we could get rid of encumbrances like our pity for their distress and our shame at neglecting them. But the conclusion evidently is, that the criterion 'good for society' is itself deduced, and can be properly interpreted only when we are informed what society is good for.

The nature of any community is determined by the prevailing character of its members. Its institutions—laws, customs, current opinions—are the impress of this character upon nature. Society is simply externalised character, and it should appear not as an unfortunate limit to one's action, but as the requisite medium for the exercise of all those higher functions that would otherwise deteriorate or die. The good of society as the ethical criterion, therefore, means the institution of a medium which shall reflect, as a more perfect external character, the more perfect character of the individual. Further, the practice of men has to be regulated in view of the limits set by nature, which yields desirable objects only after considerable pressure, and then not to an indefinite extent. By social combination nature is induced to yield the greatest possible quantity and variety of the objects of desire. The progress of the physical medium

thus keeps pace with that of the social medium, and reflects the same purpose—to increase the desirability of the individual life.

Hence the law of morality is the true expression for the various relations of human life. It seeks to determine them as means that can become objects of desire to a perfect character. For this, the only 'moving equilibrium' that ethics demands is the removal of friction between the interests of the individual and the interests of the species,—not the utopia of Mr. Spencer's Absolute Ethics. There is thus an identical interest for all men,—the realisation of a perfect character for themselves and their environments,—and this fact gives the first or ultimate predicate in the determination of the rightness of every action. It is, of course, also the most general and meaningless predicate, constituting the virtue called Justice, stating merely that men have equal rights without defining them. The further determination of right actions, all of which are in the first place just, must, however, be made through this predicate, by a more concrete reference to the relations which men ought to have to nature and to one another. It is obvious that the true expression of these relations gives the laws for the improvement and consolidation of the community. The following illustration must serve to show the difference between this interpretation of the system of morality and that which regards it as constituted by the merely external criterion.

A desire whose exercise places a burden on the other members of society is, of course, to be repressed. The marriage of people with congenital deformities is an example, but neither the desire to support the afflicted in comfort nor their desire to be thus supported. The exercise of benevolence in cases where no adequate return can be made to the community certainly entails more labour on, or admits fewer material enjoyments for, the strong; and if society be regarded as a means whereby the spoils of nature may better accrue to the spoiler, such support can only be given with a grudge and received with shame. But it is an imperfect view of the case to say that the presence of this element is undesirable to other than the sufferers themselves. The misfortune spreads to the strong only when the additional labour becomes undesirable by preventing the realisation of other desires. This view does not seek to conserve the ills of life for the sake of getting scope for the satisfaction of altruistic desires, as if a character could not be perfect that had not wretched objects to exercise its sympathies upon. But it does mean that, where the presence of these ills is

inevitable, a character and society are imperfect which ignore them or fail to find satisfaction in alleviating them. The good of society cannot be determined without assigning an interest in the spoils of labour to those who cannot forage for themselves. They bear into society a natural burden that no arrangement can eliminate, and to regard their presence merely as an evil to be crushed would be to undermine the stability of society. The logical issue of the argument would imply the diremption of society into classes or castes and the consequent apotheosis of selfishness. It is not a medium of this sort that can be the correlative of a perfect character.

These considerations do not profess to make the evil good, any more than they would prove it to be a good thing that nature presents obstacles to the exercise of every human function. But they do profess to expose the absurdity of saying 'It's a pity,' when neither the intellectual, nor the æsthetic, nor the practical character can have their complete satisfaction unless they include elements that respond to the darker as well as to the smiling face of nature.

The two conditions of an ethical end,—that it be the motive of individual action and furnish a critical system of universal laws,—are thus fulfilled by the end variously propounded in the ethic of evolution only if it be represented not as an external limit forcing itself on men, but as presenting a more desirable character and medium to the individual than any other. This is also rendered all the more necessary when another ethic of evolution, the Pessimism of Hartmann, represents nature as endeavouring by wile and glamour to induce us to realise a purpose that is essentially undesirable. And, for that matter, men became moral beings by questioning the value and scope of the altruistic instincts that are present in all non-moral beings. But we have yet considered only the relation of a perfect character to its proper medium, that is, as if already naturalised; whereas the much more essential question relates to the means of realising the desirable end. Only thus can we establish the laws that ought to regulate the relations that we actually find naturalised—namely, a less perfect character in a more perfect medium; a more perfect character in a less perfect medium; and both the individual and his medium highly imperfect.

III.

When a moralised and an unmoralised character issue in the same right action, the difference lies in this; that the

one agent finds the desire to perform the action to be itself desirable, while the other is influenced by extrinsic considerations. This is the distinction between morality and mere prudence ; between morality as an end and morality as a means. The problem of the ethic of evolution is to convert the one into the other,—to show how the morality habited in, or rather required by, the environment only, becomes naturalised in the individual character. The psychological explanation given is not peculiar to the theory, but harmonises with the general explanation given of all progress. The constant or persistent principle is, that the conscious motive of every action is what the agent regards as his greatest or least difficult pleasure. Variations in character are caused by the interaction of the medium and the current character. Finally, from the historical point of view, we have heredity, variations in transmitted characters, and the increasing economic and social necessity for a more complete correspondence with the environment. We may omit these somewhat historical explanations, as they derive their value from the two preceding principles. The one is, that pleasure is the object of desire ; the other, that desires can become more social only by the external medium either directly preventing the selfish pleasure being reached or indirectly accomplishing the same purpose through setting up a contradictory desire.

The time-honoured objection to pleasure being regarded as the object of desire is, that if it be made the end of action, it will be less than if not consciously sought. The ethic of evolution does not seek to obviate this by re-introducing our original ignorance of the real object of our desires. It says that the objection holds only when pleasure attaches to the consequence of the action, but is removed when the action itself is pleasant. The man of moralised character is he who no longer regards a right action as so much unfortunate necessity to be discounted from the pleasure consequent upon its performance, but finds in the exercise itself a positive source of additional happiness. In the language of those who brought the charge against the thesis, the practice of altruistic desires is itself 'original joy'.

All moralists since Aristotle—even the Stoics and Kant—expressly say that the truly virtuous character is one that delights in its virtue. It may also be very well said that virtuous men are the best pleased of all men. It is quite another thing, however, to suppose that their actions are performed for the sake of the pleasure or delight. If they were, the pleasure or delight could be compared and valued

with others, and the consequences we shall see to be fatal. If, on the other hand, the pleasure or delight is *sui generis*, it does not derive its value from the pleasantness of the feeling which it may be described as possessing in common with the rest.

What is the result if the moral pleasures must justify their superiority by appearing more pleasant than others? In the first place, where virtuous desires are weak or absent, they cannot be induced by this means. In the second place, if they are really incorporated in the character, they will be inevitably degraded and lost by their exercise being sought for the sake of the pleasant feeling that will immediately or ultimately follow. Let us examine the four kinds of relation between the individual and society according to the relative perfection of each. (1) There is the man of imperfect character in an imperfect medium, the exercise of whose immoral desires goes unpunished by any physical, political or social restraint. He can obviously reply to a possible adviser that his pleasures are keener than they appear to one of a more perfect character, and that the pleasures attaching to virtuous desires could be but slight to him, and would entail much pain for a long time. (2) Suppose the exercise of his imperfect character is obstructed by the restraints of the medium, he can only resent their action as unfortunate interference, to which he succumbs with a grudge, after seeking to evade them. The theory thus prevents or delays his conversion from prudential to real or spontaneous morality. (3) There is the case of the character being more perfect than the social environment, which obstructs the exercise of true morality. This is by no means an uncommon relation, and has exercised great influence on the progress of society. But, so far as the individual agent was concerned, it meant more or less of martyrdom. It may be truly enough said that the martyr delights more in exercising his virtuous desire than in exchanging it for many, or all, other pleasures; but we cannot at once proceed to the conclusion that, because it pleased him better to act as he did, he, therefore, took his course for the sake of the pleasure. We could hardly admire his intelligence if he did. By whatever means his virtuous course commended itself to him, it could certainly not be by beating so many, or all, other pleasures on their own ground. Finally, (4) even in the case of a perfect character and medium—though we have seen these to imply, or even to be defined as giving, the most varied and complete satisfaction—to make the pleasantness of the course either the conscious or unconscious motive is

to introduce an element fatal to their stability. This follows even if the agent were cunning enough to escape the everyday consequence of making one's pleasure the object of desire, namely, the loss of all desires, or the *ennui* which this prostitution involves. For the superiority of the perfect character is, that it delights in the means, as well as in the results, of action; in other words, that the pleasures attaching to the approval—and, consequently, the pains attaching to the disapproval—of conscience are extreme. But, if conscience be regarded as merely an instrument of pleasure and pain, it will gradually fail to produce them. Just as remorse gives very little pain if regarded merely as an instrument of torture, so the benevolent man will find correspondingly little delight in his virtue if he is benevolent for the pleasure of getting his own approval.

In short, while all pleasure arises from the satisfaction of desires, it fails to come—from the moral desires at least—if pleasure is their conscious or unconscious object. The satisfaction is not due to pleasure, but pleasure to the satisfaction. Satisfaction and dissatisfaction are due to the rational approval that follows the criticism of the particular desires by the idea which the agent has explicitly or implicitly set himself as the end of his actions. This supplies the only critical pleasure or delight. Whether his idea be right or not, every man in a civilised or uncivilised community has moral satisfaction always, and only, when the exercise of his particular desires does not contradict the general desire to realise it.

It follows that the improvement of character is not properly represented as due to the action of the environment, but, ultimately, to the exercise of this general or 'super-intending' desire. The distinction between a moral or responsible and a non-moral or irresponsible being is that the one is able to criticise his means of action,—the desires constituting his character,—while the other is not. It is the same thing to say that the moral being is he who is not limited to accepting his desires as he finds them. It does not follow either that one's criticism is correct or that it is able to subordinate the refractory desires without much trouble. But the criticism is no more haphazard than the criticism of anything else, and the reformation of the practical character by its means is no more contingent than the improvement of the intellectual character by similar means. Nor, of course, can the moral character become perfect by wishing, or by a languid disapproval from the general desire for completeness, any more than the intellectual character.

If, however, the student has not to wait till the desire to complete his intellectual character strikes him, now at one time, now at another, why should the reformation or degradation of moral character be contingent on the action of circumstances? We are as free to act as to think, and neither in acting nor in thinking are we limited to courses determined by the ideas that happen to strike us, as if the action of either could be explained by the association of ideas,—by cause and effect, instead of by end and means.

It is impossible in this paper to amplify these remarks or take up objections. I offer them simply to explain how only the action of the environment on character can be supposed to improve it. We have seen that, so long as punishment is merely resented, it cannot effect its purpose, and that it must always be resented till it is justified. There is no difficulty in seeing that it is necessary for society at large; but how is the individual to recognise its necessity for him? Only if his interests can be harmonised with the interests of others. But how is he to admit this? Only if his character, as he actually finds it, can be determined by the desire for a character equal to this harmony. In short, the culprit must be shown to have chosen, and acquired the right to, punishment as part of the course which he adopted, in preference to the course that had not punishment as an element in it. If it be objected that his character was bound to be what it was at the time of choosing, and that he should, therefore, still have resentment, I reply that he may know that his choice was due to either of two things. In the first place, as in yielding to a habitual vice, he may not have determined, or may not have been able to determine, his character in face of the temptation, by the general desire which aims at eliminating the causes of pain within the character. In the second place, the anticipation of the pain made when alternative courses of action were compared may not have adequately represented the reality. In either case the culprit sees the necessity for a change of character,—not for an alien good, but for his own; and not by an instrument of force, but by an instrument adopted by himself. If the function of punishment is to increase the stability of society, by improving the characters of its members, the resentment must fall, not on the punishment, but on its cause,—the imperfection of the character. This is possible only if a man finds the modifying principle to be not in an external medium, making him a means to its own good, but in a desire for completeness, which canvasses the particular

desires constituting the character, and, by appropriate means, eliminates those that are inimical to the rest and to the conditions of life. This is also the direct antithesis of the doctrine which supposes that men dread to be immoral for fear of the pangs of remorse, as if conscience were something they had unfortunately to account with, like the police. For we have seen that, unless the pain is itself desirable, he would be a very easily deluded man who did not, by defying, very shortly overcome it.

While, then, the end and means of moral progress given by the Ethic of Evolution are perfectly true—as almost any other end and means ever proposed are—it does not seem to me that they express the essence of the matter. If it is wrong to represent the laws of morality as if men existed in any sort of medium, it is, at least, as fatal to represent the individual as the child of the medium. You cannot simply close his mouth if he asks, ‘Why should I be moral?’ and it is surely not a satisfactory answer to say, ‘I’ll make you,’ as if people who ask the question are to be satisfied with being told that they are yet in their long clothes.

IV.—THE ANTINOMY OF THOUGHT.

By ALEXANDER F. SHAND.

§ 1. *Statement of the Problem.* My object in the following paper is to investigate an antinomy which infects all our thought of reality that is not intuitive. We shall find it hard to surrender either the thesis or antithesis which together constitute it; and any synthesis that would harmonise its conflicting assertions seems impossible. I shall try to show (1) what the antinomy is; (2) what the solution of it must be; and (3) how, and why, it vexes our thought. The final answer to the first question will only be reached after we have seen the various forms which the antinomy assumes in response to our attempted solutions of it. Our answer to the second question will be the outcome of this series of attempted solutions, each of which, through its failure, will bring us nearer to the true solution. The third answer will be involved in the second; for as the antinomy does not belong to the reality affirmed, but to our thought, so an adequate solution of it will be an exposure of the different errors through which it infects our thought. I shall investigate it in a common categorical judgment, and leave the reader to apply this to other cases, as well as to types of thought that are not categorical.

§ 2. *First Statement of the Antinomy.* Let us start from the judgment, that some person A whom you do not now perceive is in a place B which is also beyond your present perception. When the judgment occurs, the image or representation of A is found localised in the image or representation of B. We have first to realise that the judgment transcends these images. For, when they are vivid, when you see with the mind's eye this person in the place where you suppose him to be, and are occupied with the images, and do not analyse your thought, it seems that the images themselves are the objects of your judgment, and that which it is concerned about. You look at them as more than images, as belonging to an external order to which you yourself belong, just as you regard the perceived world as subsisting apart from your perception. But this unthinking outlook involves more than is apparent: for to think of these images as belonging to an external order, you must

judge them to subsist when you are not conscious of them ; and this would be hardly maintained on reflection. If you did maintain it, you would still be carried beyond the images. For, to think that anything is when you are not conscious of it, you must represent it in your consciousness, and (what is implied) *know this to be a representation*—which is to judge that there really is an object corresponding with it. This judgment is of the utmost importance, though almost always overlooked ; and we must realise that it can never be reduced to images and their relations. We can make in consciousness one image similar to another, and regard one as the representation of the other. But in this way we cannot possibly construct the judgment that the one image represents what we are *not* conscious of. This is only possible, where there is a judgment irreducible to any group of images and their relations, which does not even regard them as its objects, but which judges other objects of which the individual judging is *not* conscious. It then becomes possible, through this presupposed judgment, to affirm that a group of images in consciousness represents objects affirmed to be without.

Thus you have failed, and must always fail, to confine the judgment 'A is in B' to images in consciousness. It is, indeed, only the images of A and B of which you are conscious ; but it is not the image of A which you affirm to be in the image of B, but A and B themselves which you affirm to be so related ; and of them you are not conscious. It is of no matter here whether this judgment is true or false ; we are only concerned to analyse what it undoubtedly judges.

I now pass to the statement of the antithesis. In judging that A is in B, you are conscious of the judgment,—not of any bare judgment, but just this concrete judgment that A is in B. Now abstract A and B, and the judgment becomes a bare 'You judge' without there being anything that you judge. Substitute C and D, or E and F in place of A and B, and you have a different judgment. You must, therefore, be conscious of A and B, the objects of the judgment, otherwise you would be conscious of a bare judgment, or a different judgment, but not this concrete judgment that A is in B. But you are not conscious of A and B : you have affirmed, and must continue to affirm, that any A and B in your consciousness is a mere representation, which this judgment is not affirming, which it is not limited by, but which its very essence is to transcend.

Thus you must judge, on the one side, that you are not conscious of A and B, on the other, that you are,—that A and B are in your judgment, and yet also outside of it.

§ 3. *First attempted solution of the Antinomy.* The judgment 'A is in B' is true or false. Suppose it false, in the first instance, and so completely false that no objects A and B exist to correspond with *a* and *b*, their images in consciousness. None the less the judgment affirmed them—affirmed A in a certain relation to B. You must then distinguish the affirmed A and the affirmed B from A and B, the objects. The first are in the judgment, and contained therefore in a reality in consciousness: the last in this case have no reality; and you cannot confuse what is and is not. And if the judgment 'A is in B' is true, we must still maintain the distinction. For the affirmed A and the affirmed B are in the judgment affirming them, but A and B the objects we suppose are real outside of it. Thus we are no longer bound to judge that the subject judging is conscious of A and B, nor that A and B in the same sense are both in and outside of the judgment. For the affirmed A and the affirmed B are alone in the judgment; but if A and B the objects are real, they are real outside of it.

§ 4. *Second form of Antinomy.* The failure of the first solution may be shortly expressed if we symbolise the affirmed A and the affirmed B by *a* and *β*. For if all of which the subject is conscious is the *a* and *β* in the judgment, then this is all the subject judges in the judgment; whereas if the subject judges about A and B, and not about *a* and *β*, then it is A and B of which the subject is conscious. And the reason is, that if it is A and B I judge, then it is A and B that gives the judgment its concrete character, or makes it this judgment and not another—a judgment concerned about A and B, and not about *a* and *β*. Hence it follows that it is precisely A and B of which I am conscious, inasmuch as I am conscious of *this* judgment; whereas if it is *a* and *β* of which I am conscious in the judgment then it is *a* and *β* which give the judgment its concrete character, and therefore *a* and *β* which are judged. We will not accept this alternative, and cannot escape from it: we are obliged to reassert that the subject judges an A and B of which it is not conscious and not an *a* and *β* of which it is.

§ 5. *The solution of the Antinomy must be through some modification of the Antithesis.* The thesis is that I am unconscious of A and B, though I judge them. This I have not tried to modify, for it is the very judgment we set out to interpret; and if we denied its possibility, this would involve the denial of all other judgments that unite with it

in judging that of which the subject judging is not conscious. Thus would disappear in theory our practical life which is based on such judgments. We sought then to modify the antithesis, that in thinking about A and B we unite them to our thought and consciousness ; for its denial would destroy no type of judgment, and so little is it bound up with our practical life that it is in flagrant opposition to its presuppositions, and the practical man would think it absurd. In this course we shall continue.

§ 6. *General statement of the Antinomy.* The subject is bound to judge both that it is confined to its thought and consciousness, and that it transcends them. Yet this obligation cannot be fulfilled. The subject cannot unite in one judgment these contradictory qualities, but falls a helpless prey to each in successive states of its own existence. The contradiction does not merely arise, as the German idealists hold, from judging that anything is beyond thought in general, but whenever the individual judges that anything is beyond his thought at the moment of his thinking. For when he judges, then what he judges his thought embraces.

§ 7. *The sensuous meaning of the words, 'transcending,' 'outside of,' and the like.* Now, since in the judgment 'A is in B' I am judging, not that the thoughts α and β , and α and β the representations, are related in a certain way, but that A and B themselves are, we have to ask from the point of view of the antithesis how this judgment is possible, seeing that to make it possible I must go quite outside my thought and consciousness. But, were I able to do this, would it help me? Could I travel to the place where I think that A and B are, if they are, I should get an intuition of them. I could not then affirm in presence of this intuition that they are, though I am *unconscious* of them ; but if they are not, but others instead of them, then I could not affirm that they are in presence of this opposite intuition. Thus, could the subject through its function of judging reach to where it thinks A and B are, this judgment would still be impossible to it. Only if consciousness is limited, but judgment not limited by consciousness, is it possible for me to judge that of which I am not conscious.

§ 8. *Judgment need not be in 'contact' with its object, nor 'contain' it.* If we now turn to criticise the thinking which has led to this conclusion, and the question which started it, we shall find that it has been dominated throughout by

metaphor, by the spatial meaning of these words, 'transcending,' 'going outside of,' and the like. We supposed that, if judgment could judge anything beyond the consciousness of its subject, it must literally travel to that distant object, till it came in contact with it. This was our implied reason for seeking to send judgment beyond consciousness; for since the latter was not in touch with its object, it seemed obvious the former must be. We did not stop to ask ourselves, how a thinking subject could be in contact with an extended object. It did not occur to us that even the extended forms of which we are conscious in perception, we, not being one of them, are not in contact with in the same sense as they are with one another; that our contact with them, when we strip the word of metaphor, means simply that we are conscious of them. Why then should we seek for judgment a contact with its object which, likewise from its very nature, is impossible? Why did we not conclude, that as in the one case we are conscious of the object without *physical* contact, so in the other we judge the object without such contact?

There is then no difficulty in the way of judgment because we as subjects are incapable of *motion* and cannot go outside of consciousness to *touch* the object. The only sense in which we go outside it or transcend it, and that which leads to our use of these metaphorical terms, is, simply, that we judge that of which we are not conscious. But language is so penetrated by metaphor, that the dismissal of an image from one set of words leads often to its insertion in others. So it occurs to us, that if our thought cannot transcend consciousness, we must be confined to it. But just in the sense that we, as thinkers, cannot get to the object beyond consciousness, we cannot get to the object in it, and in the same sense that we can get to the object in consciousness, we may get to the object beyond it. Again, we say that, if we do not go out of consciousness to reach the object we judge without it, then, for the possibility of the judgment, there must be some emission from the object to consciousness, bringing its effect or representation there. Now, what is brought into the visual field we possess as an intuition, and if this intuition is all we know, it destroys the possibility of the judgment which judges without intuition of its object: but if we know more, if we know the intuition as an *effect* or *representation*, then this knowledge is still concerned with something not in consciousness, and would be impossible without this reference. But we repeat, and take denial as a palpable self-

contradiction, that, if thought is separated from reality, the one can have no dealings with the other. For to think what is separate from our thought, we must unite it to our thought, and contradict ourselves. And the clear sensuous meaning of the words convinces us. We make no criticism of the words, nor suspect that they present us with a wrong relation of thought and reality, because the unextended thought is transformed to an extended object. But, when we rid ourselves of the metaphor, it is by no means clear that we cannot think a reality separate from our thought of it: for it may not exist, and cannot then be brought into contact with thought; and it may exist miles away, and yet be thought of.

To answer this objection, we make use of the metaphors of 'inside' and 'outside'. 'In thinking reality the reality is rather inside thought than in contact with it, and the contradiction lies in thinking it outside: it is in the sphere of thought, and not in the sphere of an external reality.' If we ask why it must be inside thought, why thought must be confined to its own nature and content, our answer falls back on the old metaphor of contact: 'only within its own sphere can thought be in contact with reality'.

§ 9. *The metaphor of 'contact' applied to the consciousness of space.* Under the influence of this metaphor it not only seems impossible to us that thought can affirm an object not in contact with the thought, but it suggests a corresponding difficulty with regard to consciousness. I do not mean to make any reference to the literal contact of the object with the nervous system, but to that further and metaphorical contact of it with thought and consciousness. Now I am conscious of a complex of coloured forms in space. But space, we think, has three magnitudes, and one of these magnitudes runs away from me. I cannot obviously be in contact with this distance. I can only be in contact with a surface. Through my contact with this surface I become conscious of it; but distance I am not in contact with, and cannot, therefore, be conscious of. This surface is a magnitude. Am I then the same magnitude as it, or less, or greater? If less, then a part of this surface I cannot be in contact with, and this part I must, in consistency, exclude from consciousness. Of that surface only which is the same magnitude as my subject, or less than it, can I be conscious. But as I am already a magnitude, and this is my very nature, why seek, through my contact with another magnitude, to explain how I come to possess that which I

possess already, and which if I did not possess, I could not have that contact which is supposed to give it me?

But let us follow out the metaphor in another direction. I am not conscious of distance; I only infer it. But I cannot infer it, for I am not in contact with it. My judgment cannot travel through space to the distant object, and if it could, it would destroy the thought of distance. But let these difficulties pass, and suppose that we do infer, and can only infer, distance: let us compare this inferential knowledge of space with that which we have by means of consciousness. Now I am conscious of a variously coloured surface, and I cannot be conscious of the different forms on it as lying at different distances from me, because I am only conscious of a surface; and therefore all these forms I am conscious of as lying on a surface, and not as lying some in front and some behind the others. This is what my perception is, according to the metaphor of contact; and now let us see what the inference is. I judge that these very coloured forms, which I know by consciousness to lie together on a surface, do not lie together on a surface, but are at different distances from me. Thus I contradict the intuitive knowledge I have of them, which no knowledge can surpass in certainty, by a mediate or inferred knowledge. Either then I am not conscious of these forms as definitely on a surface, or, if I am, I cannot affirm them to be what I am certainly conscious they are not.

§ 10. *The Antinomy need not base itself on the metaphors 'in' and 'out,' and 'contact'.* There is a meaning not sensuous in which we may use these words. We may mean that A and B are in thought, and in union with it, as constituents of its judgment. Then the thesis urges a threefold objection. These supposed constituents are either *a* and *b* the images, or the thoughts *a* and *β*, or a commingling of both; but neither one, nor the other, nor both, am I affirming. I am affirming A and B the objects, which are not a present intuition of mine, nor my thought about it, nor my thought and intuition combined—a whole which is altogether in consciousness. And it is certain too that if I put or find these thoughts and images in a certain relation, they are in that relation; but what is not certain is that an A and B of which I have no intuition, and which may not even exist, are in that relation in which I affirm them to be.

§ 11. *Second attempted solution of the Antinomy.* By our criticism of metaphors we have only repeated and rein-

forced the one-sided argument of the thesis, and exposed the sensuous grounds on which the antithesis is apt to rest, but it has other supports. We have shown that the thesis need not be modified merely because the judgment cannot literally transcend consciousness, and is separated from its object ;—that we might accept the thesis as true perhaps but for the antithesis. Has this advanced our solution ? In this important respect : according to the thesis I am unconscious of A and B, and A and B are not in the judgment, though I am conscious of judging that A is in B. This act of judging does not require me to be in contact with A and B. It does not presuppose the actual reality of A and B, which it must if there is to be contact. On the contrary it only judges A and B to have reality. The sole function of the subject in this judgment lies in affirming A, in affirming B, and in affirming a certain relation between them. This one function *is* the judgment. This one function then is all that the subject is conscious of in being conscious of the judgment. That is to say, the subject is conscious of affirming A, but not of A ; is conscious of affirming B, but not of B ; is conscious of affirming-a-certain-relation-between-them, but not of this relation itself. For, if it were conscious of A and B in affirming them, it would have to confer on them reality, or presuppose it as given. Again, because the subject is not conscious of A and B in the judgment, it does not follow that it is only conscious of the bare act of judging ; for it is conscious of this very concrete act of judging-that-A-and-B-are-in-a-certain-relation. From supposing separate (what are inseparable), the abstract act of judging and what the subject judges, we falsely concluded that the subject is conscious of A and B in being conscious of the judgment, whereas it is only conscious of judging-A-and-B. Judging that is not intuition is only judging, and does not amount to any the least act of creation, or 'putting forth' of reality, which, as result of its act, would become something separate. A and B are only *thought* to be : whether they *are*, is a different matter not even affected by thinking of them. And, as thought to be, they are in indissoluble unity with the act of thinking them, and nothing separate or independent. Lastly we must make no mistake on this point : for the very reason that no A and B are put forth by the judgment, it is possible to be unconscious of A and B, though judging them. For if A and B were a real result, or a given datum, in the judgment, I could not but be conscious of them in being conscious of the judgment. Thus upon this subtle, but vitally important, distinction depends our solution of the antinomy.

§ 12. *The main source of the Antinomy is found in Language.* Our error has been a confusion, and language is at the bottom of it. For the terms of its proposition are easily separable, stand there as so many independent units, casually connected. Without being aware of any change of standpoint, we suppose the same to be true of judgment. The proposition, from its sensuous nature, attracts our attention, but it is hard to make the judgment an object of thought. So we transfer the qualities of one to the other. Thus thinking by metaphor we lean on the proposition, as if its linguistic expression *was* the judgment. Thus we use metaphors as lights to see into the dark recesses of thought, but which cast there their own images: and we are turned aside from the truth by countless false questions and false inferences.

We take A and B out of the proposition without difficulty, holding up to consciousness two complete and separable realities, behind which, in no very obvious connexion, stands the act of judgment—another reality also complete in itself; or we confuse the images *a* and *b* with the A and B judged, which, like the images, are supposed actual, separable from one another and from the act of judgment. This fundamental error rises afresh in a variety of forms, bringing back upon us the antinomy; and it will continue to vex us as long as thought is weak, and leans upon sense for clearness.

§ 13. *Third form of the Antinomy, and its solution.* If the judgment 'A is in B' is true, a real A and B corresponds with the judgment. There must then be an asserted A and B in the judgment for the real A and B to correspond with, and *a* and *β* must stand in the same relation to one another as A and B. Thus we are forced into the old error of breaking up the unity of the judgment and finding a complete object *a* and *β* within the judgment, with the result that it must be *a* and *β* that is judged, and not A and B (§ 4). The way out of this metaphysical difficulty can only be hinted at here. We take the transcendent judgment too abstractedly. Besides the act of judging A and B, there is another act combined with it, very different from it. This is an act of consciousness which has the images *a* and *b* for its objects. Now, in the mere transcendent act of judging A and B, there is nothing, perhaps, for the real A and B to correspond with. But the whole act is something more than this transcendent act; and it judges that the correspondence lies be-

tween the images *a* and *b* in consciousness, and the A and B that are transcendently judged.

§ 14. *Ambiguous meaning of 'what is judged' and 'object'.* We speak of 'judgment and its object,' or 'judging and what is judged'. 'What is judged,' the object, means either the reality outside the judgment, or what is judged, whether or not there happen to be this reality. Now, though there must always be an object to a judgment, in the sense that judgment cannot be arrested at the bare act of judging but must be judging-about-something, there needs not be an object in the other sense of a reality that corresponds to our representation of it.

§ 15. *Fourth form of the Antinomy, and its solution.* The bare act of judging is not then sufficient to constitute a judgment; there must be a something judged to complete it and give it concrete character. Through this distinction the antinomy returns in a choice of alternatives, neither of which can be accepted. For, either we affirm that the something judged is outside the judgment, and then this external reality cannot be contained in it; or we affirm that the something judged is contained in it, and then it cannot be external. But on neither alternative can we judge that what we judge is external: in the first case, because the object is external, and cannot be the something judged which belongs to the judgment as the completion and concretion of its own act; in the second case, because the object is this inalienable property of the judgment, and is not external. We repeat our former solution, that neither A and B, nor objects in any other sense, are contained in the judgment. Nor, as we struggle to believe, does the judgment, in affirming-an-external-A-and-B, fall into self-contradiction; for this would only occur if the reality of what it affirms were given to it, or created by it. But this is no answer to the objection, that, if 'what is judged' is contained in the judgment, it cannot be truly judged to be external. We may be deceived by the metaphorical meaning of the word 'content'. Judgment is no hollow cavity, filled in its concrete existence with a content, no particle of which is anywhere but within it. A and B are rather *of* the judgment, and *belonging* to it, than contained in it. But the difficulty is that A and B cannot be external, for A and B are required to complete the bare act of judging, and to give it concrete character. We repeat there is no contradiction in the judgment, till A and B are taken out of their *fluid* and *continuous* state in it, and

hardened into realities, till the thinking-of-them is transformed into existence. The thinking or affirming of them is truly a judgment; but as existing, if they exist, they are wholly external to the judgment.

§ 16. *Fifth form of the Antinomy, and its solution.* If the A and B belonging to the judgment are no realities, but only the thinking-of-them, then it is these thoughts that the judgment is concerned about, and even if there are external realities to correspond, they are not what the judgment judges. Our solution is that this thinking-of-them *is* the judgment, and this is not of course external, though it is a thinking-of-them-as-external.

§ 17. *Sixth form of the Antinomy, and its consequence.* The antinomy reaches a climax in the form: 'them,' as a constituent of the judgment, cannot be external, cannot be, what you affirm it, an external reality. Let us suppose this contention valid, and push it to its consequences. It follows that A and B as constituents of the judgment are internal; and, as they are in the judgment, they are no realities, but only the thinking-of-them. This is all that the judgment contains. But this thinking of them is itself a judgment, and with regard to it the same difficulty recurs as to the meaning of 'them,' which must receive the same answer, that 'them' is no reality, but only the thinking-of-it. What the judgment contains is then the thinking-of-the-thinking-of-it. And we are forced a step further towards absurdity. We must deal with 'it' as we dealt with 'them'; 'it' is no reality, but only the thinking-of-it, and so on for ever. All that judgment contains is the thinking-of-the-thinking-of-the-thinking. . . . It can never become articulate, and struggles in vain to reach beyond itself. It cannot judge external reality, and it judges no other: it judges nothing at all. It seems to judge something contained in itself, which is not reality, but only a bare and meaningless 'judging' over again. Even reduced to this impossible abstraction, it cannot avoid self-contradiction. It is bound to judge its objectless object, its bare act of judging, as real in some way, as real in its thought, and so it is led on again in a course to which there is no end.

But this absurd consequence is not a refutation of the antinomy. As once before we were led into a defence of the thesis, so here we have undertaken to expose the self-contradiction of the antithesis. But it is brought to contradiction because it accepts, and cannot help accepting, the thesis; and this is the very nature of the antinomy, that either side followed

to its consequences refutes itself, because it is implicated with the other side. The antinomy, however, is not answerable for such consequences. Its true position is scepticism; its function is destruction; it reiterates a persistent contradiction. And we have failed to resolve this contradiction, to explain how 'them' as a constituent of the judgment can be judged to be external, and how the judgment can dispense with this constituent without becoming a bare objectless act.

§ 18. *The source of this form of the Antinomy* lies in the distinction of 'judging' from 'what is judged'. Once we work on this distinction, 'what is judged' inevitably assumes the form of reality. We deny that it is a fixed or completed reality, only to affirm it as fluid or 'becoming'. We confuse a judgment which contains no kind of reality save the reality of its own act, with one that contains some image of which we are conscious. And our solution has failed because we are bound by a distinction which prevents a consistent employment of it. When we forget the distinction, then the solution applies, but the antinomy returns when we recall it.

§ 19. *The nature of the distinction of 'judging' from 'what is judged'*. We have seen that the phrase 'what is judged' is ambiguous, and I here put aside one meaning of it. I am not going to consider the distinction of judging from what is judged—the reality outside the judgment, but that perplexing distinction within the judgment. Now, so far as it holds at all, it only holds between different stages in the development of a thought, and not between any statical elements in a thought. Asking the meaning of a judgment, we may seek to make our vague conception of it clearer by asking 'what it judges'. And we think it shows some advance to be sure of this point only, that judgment must judge something. Judging and a something judged are thus set over against one another as fixed elements of the judgment, whereas they are only successive stages of it. At first comes the bare act, and then something more definite. As when we look at a distant object, or one lost in any mist or obscurity, and ask: What is it? feeling sure that it is no mere object in general but an individual object; so with a like expectation we question the judgment, and answer that there must be a something judged. We are further led to regard this difference as a constant one within the judgment, by a habit of language. For language places an 'I am judging' before what I judge. In the present case I am judging that A is in B. It seems, on the one hand, there

is an act or operation, on the other an object, as the Scottish school express it. We have here a redundancy of phrase, which has made us suppose a real elemental difference. We need not prefix an 'I am judging'. 'A is in B' is a complete expression of the judgment, save that it does not refer the judgment to *me* as its subject. 'A is in B,' then, is my act of judging; it is also 'what is judged'. This act is no mere act of judging, but the very concrete act that A is in B; and 'A is in B' is what is judged. Thus if we rightly reflect on a judgment we shall not find within it any such distinction of 'judging' from 'what is judged'; though there is a difference between the first vague thought of the act and the truer and more definite one into which it passes, when the strange out-going character of the act is recognised.

§ 20. *The distinction of Thought from Reality.* In a similar fashion, we are apt to regard the relation of Thought to Reality—the universal to the singular. First comes to the thinker the indefinite and abstract, then, as progress is made, the more concrete and definite; and these moments of thought are looked upon as necessary elements of the 'concrete universal'. Thought thinks reality, and therefore contains it and characterises it and makes it thought; and thought is reality, for thought is nothing apart from the reality to which it is united. Many are apt to prize this result as indicating an advanced stage of philosophy which has solved its hardest problem; for in this act they suppose they find the profound gulf between Thought and Reality bridged by the wide-stretching span of thought. We, on the other hand, have struggled to force reality out of thought and the judgment, because any theory which cannot do this inevitably fails to account for those fundamental types of judgment and thought which, though they think reality, do not judge this reality to be within their thought and the consciousness of their subject, but outside of both.

§ 21. *Judgment, in what sense a simple unity.* Since there is, within the judgment, no constant difference of 'judging' from 'what is judged' it follows that 'judging' and 'what is judged' are not diverse elements from whose union the judgment results. 'What is judged'—'A is in B'—is my very act of judging. This my act of judging does not become concrete from union with an element different from itself, but is itself concrete. And my judgment is a simple act in this respect, that it excludes all actual relation to its object,

and to containing its object as a constituent. It is true that consciousness contains its object; but it is not true of any judgment so far as it is transcendent, that is, so far as it transcends what the subject judging is conscious of. For, if A and B are constituents of my judgment, A and B are with it in consciousness. If external reality is an idea or 'universal,' the affirmation of it is a self-contradiction; but in affirming external reality I am not affirming an idea, but a reality, to be external. Neither the reality nor the relations I affirm of it are in my thought, nor has my thought any dealings with them, nor is my judgment constituted by their union. It may seem as if, in the judgment 'A is in B,' the relations of difference between A and B are in my thought, not to speak of other relations. But this is not so. There is only the *judging-of-a-difference*: there is no *actual* difference. Whatever judgment we examine, and however much we abstract from the complexity of its real object, we always find this judging-of-an-object. We cannot get beneath this act; we cannot resolve it into components. Though we must use two such words to express it, as 'judging' and 'object', which for ever suggest a fundamental difference in the judgment, yet judgment is no such complex of elements, for it is itself an element. But in another sense the act of judging is complex. When we do not regard it in the abstract, but in its real occurrence, we find that its act is a complex of different acts of judging, and that it also combines with acts of consciousness, desire, and will. But abstract from this complexity, isolate an act, look how it is concerned about an object, then in this concernment it is altogether simple.

§ 22. *Solution of the sixth form of the Antinomy.* I justify the theory of the simplicity of judgment as judgment on this one ground, that it alone adequately solves the antinomy. Whereas, if judgment be regarded as complex *in reference to its object*, no solution of the antinomy is possible. For, on this view, there is a factual relation in the judgment between the act and its concrete object, and through this concrete object entering the judgment as a constituent, the judgment alone itself becomes concrete; thus it is impossible to affirm without contradiction that the object is anywhere but where the judgment is. But inasmuch as the act is simple in reference to its object, and A and B are not in the judgment as constituents, I am not conscious of A and B, though I am conscious of judging-them; and inasmuch as my act is concrete, because it judges these objects

A and B, I am not conscious of an abstract and objectless act.

§ 23. *Other forms of the Antinomy are easy of solution.* 'A is in B' is a judgment; a judgment is an internal reality; how then can it be two external realities in relation? The judgment is an internal reality, though it is judging-two-external-realities. Again, since the act of judging contains no reality but the reality of its act, it has nothing left to judge but this act. This form of the antinomy is based on the metaphor of contact. Now we have already seen that this judgment is not confined to judging the reality of its act, nor to anything in the consciousness of its subject, which would destroy its possibility. How, indeed, it comes to pass that I can judge a reality other than the reality of my judgment; how, further, it comes to pass that I am not even confined to any reality of which I am conscious;—are questions that we seek in vain to answer. We do best to examine the questions; and I have already sought to show that the suspicion they involve arises from our uncritical use of the terms, 'confined,' 'transcending,' and the like, with the consequent confusion of their pure meanings, as expressing functions of judgment, with the literal and sensuous meanings of the words. But we shall not attempt a positive answer to these questions, if we know what we are about. For how can we construct the knowledge which transcends our judgment and consciousness out of elements which do not presuppose the very knowledge to be constructed? In showing how it is possible for us to think a world beyond our thought, we must always assume there is this world, before setting out to explain how thought can reach it. We must sweep away metaphors and the barren questions in which they involve us, and recognise once for all that judgment is one reality that judges another reality.

§ 24. *The various sources of the Antinomy, and their fundamental identity.* At first, language betrayed us into setting up as complete realities the A and B which, contained in the proposition, seemed also contained in the judgment. And, by discovering the true solution that this judgment neither makes nor contains the reality which it judges, we could not help falling back into the antinomy again and again. For the fatal distinction of judgment and object, 'judging' and 'what is judged,' as a distinction somehow within the judgment, is logically to it. Lastly, we

had to rid ourselves of the error, implied in this distinction, that judgment, as judgment, is a complex unity.

And the source of these various errors is the same in kind. Thought strives to free itself from sense, and to think its own nature without contradictions. But metaphor, and the secret habits of language, are graven upon thought, and have there written vain questions, and false doctrines. Thought asks how it can pass outside of itself, and the metaphors of 'outside' and 'contact' destroy its hopes. In despair it seeks to confine itself to consciousness, to its immediate knowledge. What then is the meaning of its doubts: why does it question, suppose, take disjunctive and problematic forms, when all is certain there, and contained in intuition? Or, it falls a prey to the sensuous symbolism of itself in language. It discovers in the proposition the subject, predicate and copula. It analyses judgment into diverse elements. It succumbs to the habit of language, placing a redundant act of judging before the judgment: it supposes a fundamental difference. Thus the fictitious clearness which sense holds out, and the ancient associations which bind thought to it, deceive thought as to its own nature. And the fundamental error which runs through all the other errors is this:—the confusion of the judgment with the consciousness or intuition of reality.

V.—MENTAL TESTS AND MEASUREMENTS.

By Prof. J. McK. CATTELL.

Psychology cannot attain the certainty and exactness of the physical sciences, unless it rests on a foundation of experiment and measurement. A step in this direction could be made by applying a series of mental tests and measurements to a large number of individuals. The results would be of considerable scientific value in discovering the constancy of mental processes, their interdependence, and their variation under different circumstances. Individuals, besides, would find their tests interesting, and, perhaps, useful in regard to training, mode of life or indication of disease. The scientific and practical value of such tests would be much increased should a uniform system be adopted, so that determinations made at different times and places could be compared and combined. With a view to obtaining agreement among those interested, I venture to suggest the following series of tests and measurements, together with methods of making them.¹

The first series of ten tests is made in the Psychological Laboratory of the University of Pennsylvania on all who present themselves, and the complete series on students of Experimental Psychology. The results will be published when sufficient data have been collected. Meanwhile, I should be glad to have the tests, and the methods of making them, thoroughly discussed.

The following ten tests are proposed :

- I. Dynamometer Pressure.
- II. Rate of Movement.
- III. Sensation-areas.
- IV. Pressure causing Pain.
- V. Least noticeable difference in Weight.
- VI. Reaction-time for Sound.
- VII. Time for naming Colours.
- VIII. Bi-section of a 50 cm. line.
- IX. Judgment of 10 seconds time.
- X. Number of Letters remembered on once Hearing.

¹ Mr. Francis Galton, in his Anthropometric Laboratory at South Kensington Museum, already uses some of these tests, and I hope the series here suggested will meet with his approval. It is convenient to follow Mr. Galton in combining tests of body, such as weight, size, colour of eyes, &c., with psychophysical and mental determinations, but these latter alone are the subject of the present discussion. The name (or initials) of the experimentee should be recorded, the nationality (including that of the parents), and the age, sex, occupation and state of health. [See Remark (a) by Mr. Galton below, p. 380. Ed.]

It will be noticed that the series begins with determinations rather bodily than mental, and proceeds through psychophysical to more purely mental measurements.¹

The tests may be readily made on inexperienced persons, the time required for the series being about an hour. The laboratory should be conveniently arranged and quiet, and no spectators should be present while the experiments are being made. The amount of instruction the experimentee should receive, and the number of trials he should be given, are matters which ought to be settled in order to secure uniformity of result. The amount of instruction depends on the experimenter and experimentee, and cannot, unfortunately, be exactly defined. It can only be said that the experimentee must understand clearly what he has to do. A large and uniform number of trials would, of course, be the most satisfactory, the average, average variation, maximum and minimum being recorded. Time is, however, a matter of great importance if many persons are to be tested. The arrangement most economical of time would be to test thoroughly a small number of persons, and a large number in a more rough-and-ready fashion. The number of trials I allow in each test is given below, as also whether I consider the average or 'best' trial the most satisfactory for comparison.

Let us now consider the tests in order.

I. *Dynamometer Pressure.* The greatest possible squeeze of the hand may be thought by many to be a purely physiological quantity. It is, however, impossible to separate bodily from mental energy. The 'sense of effort' and the effects of volition on the body are among the questions most discussed in psychology and even in metaphysics. Interesting experiments may be made on the relation between volitional control or emotional excitement and dynamometer pressure. Other determinations of bodily power could be made (in the second series I have included the 'archer's pull' and pressure of the thumb and forefinger), but the squeeze of the hand seems the most convenient. It may be readily made, cannot prove injurious, is dependent on mental conditions, and allows comparison of right- and left-handed power. The experimentee should be shown how to hold the dynamometer in order to obtain the maximum pressure. I allow two trials with each hand (the order being right, left, right, left), and record the maximum pressure of each hand.

II. *Rate of Movement.* Such a determination seems to be of considerable interest, especially in connexion with the preceding.

¹ Sharpness of sight (including colour-vision) and hearing might, perhaps, be included in the list. I have omitted them because it requires considerable time to discover the amount and nature of the defect (which is usually bodily, not mental), and because abundant statistics have been published, and are being collected by oculists and aurists. [See Remark (b) below, p. 380.]

Indeed, its physiological importance is such as to make it surprising that careful measurements have not hitherto been made. The rate of movement has the same psychological bearings as the force of movement. Notice, in addition to the subjects already mentioned, the connexion between force and rate of movement on the one hand and the 'four temperaments' on the other. I am now making experiments to determine the rate of different movements. As a general test, I suggest the quickest possible movement of the right hand and arm from rest through 50 cm. A piece of apparatus for this purpose can be obtained from Clay & Torbensen, Philadelphia. An electric current is closed by the first movement of the hand, and broken when the movement through 50 cm. has been completed. I measure the time the current has been closed with the Hipp chronoscope, but it may be done by any chronographic method. The Hipp chronoscope is to be obtained from Peyer & Favarger, Neuchâtel. It is a very convenient apparatus, but care must be taken in regulating and controlling it (see MIND No. 42).¹

III. *Sensation-areas.* The distance on the skin by which two points must be separated in order that they may be felt as two is a constant, interesting both to the physiologist and psychologist. Its variation in different parts of the body (from 1 to 68 mm.) was a most important discovery. What the individual variation may be, and what inferences may be drawn from it, cannot be foreseen; but anything which may throw light on the development of the idea of space deserves careful study. Only one part of the body can be tested in a series such as the present. I suggest the back of the closed right hand, between the tendons of the first and second fingers, and in a longitudinal direction. Compasses with rounded wooden or rubber tips should be used, and I suggest that the curvature have a radius of .5 mm. This experiment requires some care and skill on the part of the experimenter. The points must be touched simultaneously, and not too hard. The experimentee must turn away his head. In order to obtain exact results, a large number of experiments would be necessary, and all the tact of the experimenter will be required to determine, without undue expenditure of time, the distance at which the touches may just be distinguished.

IV. *Pressure causing Pain.* This, like the rate of movement, is a determination not hitherto much considered, and if other more important tests can be devised they might be substituted for these. But the point at which pressure causes pain may be an important constant, and in any case it would be valuable in the diagnosis of nervous diseases and in studying abnormal states of consciousness. The determination of any fixed point or quantity in pleasure or pain is a matter of great interest in theoretical and practical ethics, and I should be glad to include some such test

¹ See Remark (c) below, p. 381.]

in the present series To determine the pressure causing pain, I use an instrument (to be obtained from Clay & Torbensen) which measures the pressure applied by a tip of hard rubber 5 mm. in radius. I am now determining the pressure causing pain in different parts of the body; for the present series I recommend the centre of the forehead. The pressure should be gradually increased, and the maximum read from the indicator after the experiment is complete. As a rule, the point at which the experimentee says the pressure is painful should be recorded, but in some cases it may be necessary to record the point at which signs of pain are shown. I make two trials, and record both.

V. *Least noticeable difference in Weight.* The just noticeable sensation and the least noticeable difference in sensation are psychological constants of great interest. Indeed, the measurement of mental intensity is probably the most important question with which experimental psychology has at present to deal. The just noticeable sensation can only be determined with great pains, if at all: the point usually found being in reality the least noticeable difference for faint stimuli. This latter point is itself so difficult to determine that I have postponed it to the second series. The least noticeable difference in sensation for stimuli of a given intensity can be more readily determined, but it requires some time, and consequently not more than one sense and intensity can be tested in a preliminary series. I follow Mr. Galton in selecting 'sense of effort' or weight. I use small wooden boxes, the standard one weighing 100 gms. and the others 101, 102, up to 110 gms. The standard weight and another (beginning with 105 gms.) being given to the experimentee, he is asked which is the heavier. I allow him about 10 secs. for decision. I record the point at which he is usually right, being careful to note that he is always right with the next heavier weight.

VI. *Reaction-time for Sound.* The time elapsing before a stimulus calls forth a movement should certainly be included in a series of psychophysical tests: the question to be decided is what stimulus should be chosen. I prefer sound; on it the reaction-time seems to be the shortest and most regular, and the apparatus is most easily arranged. I measure the time with a Hipp chronoscope, but various chronographic methods have been used. There is need of a simpler, cheaper and more portable apparatus for measuring short times. Mr. Galton uses an ingenious instrument, in which the time is measured by the motion of a falling rod, and electricity is dispensed with, but this method will not measure times longer than about $\frac{1}{3}$ sec. In measuring the reaction-time, I suggest that three valid reactions be taken, and the minimum recorded. Later, the average and mean variation may be calculated.¹

VII. *Time for naming Colours.* A reaction is essentially reflex,

[¹ See Remark (d) below, p. 381.]

and, I think, in addition to it, the time of some process more purely mental should be measured. Several such processes are included in the second series; for the present series I suggest the time needed to see and name a colour. This time may be readily measured for a single colour by means of suitable apparatus (see MIND No. 42), but for general use sufficient accuracy may be attained by allowing the experimentee to name ten colours and taking the average. I paste coloured papers (red, yellow, green and blue) 2 cm. square, 1 cm. apart, vertically on a strip of black pasteboard. This I suddenly uncover and start a chronoscope, which I stop when the ten colours have been named. I allow two trials (the order of colours being different in each) and record the average time per colour in the quickest trial.

VIII. *Bisection of a 50 cm. Line.* The accuracy with which space and time are judged may be readily tested, and with interesting results. I follow Mr. Galton in letting the experimentee divide an ebony rule (3 cm. wide) into two equal parts by means of a movable line, but I recommend 50 cm. in place of 1 ft., as with the latter the error is so small that it is difficult to measure, and the metric system seems preferable. The amount of error in mm. (the distance from the true middle) should be recorded, and whether it is to the right or left. One trial would seem to be sufficient.

IX. *Judgment of 10 sec. Time.* This determination is easily made. I strike on the table with the end of a pencil, and again after 10 seconds, and let the experimentee in turn strike when he judges an equal interval to have elapsed. I allow only one trial and record the time, from which the amount and direction of error can be seen.

X. *Number of Letters repeated on once Hearing.* Memory and attention may be tested by determining how many letters can be repeated on hearing once. I name distinctly and at the rate of two per second six letters, and if the experimentee can repeat these after me I go on to seven, then eight, &c.; if the six are not correctly repeated after three trials (with different letters), I give five, four, &c. The maximum number of letters which can be grasped and remembered is thus determined. Consonants only should be used in order to avoid syllables.

Experimental psychology is likely to take a place in the educational plan of our schools and universities. It teaches accurate observation and correct reasoning in the same way as the other natural sciences, and offers a supply of knowledge interesting and useful to everyone. I am at present preparing a laboratory manual which will include tests of the senses and measurements of mental time, intensity and extensity, but it seems worth while to give here a list of the tests which I look on as the more important in order that attention may be

drawn to them, and co-operation secured in choosing the best series of tests and the most accurate and convenient methods. In the following series, fifty tests are given, but some of them include more than one determination.

Sight.

1. Accommodation (short sight, over-sight, and astigmatism).
2. Drawing Purkinje's figures and the blind-spot.
3. Acuteness of colour vision, including lowest red and highest violet visible.
4. Determination of the field of vision for form and colour.
5. Determination of what the experimentee considers a normal red, yellow, green and blue.
6. Least perceptible light, and least amount of colour distinguished from grey.
7. Least noticeable difference in intensity, determined for stimuli of three degrees of brightness.
8. The time a colour must work on the retina in order to produce a sensation, the maximum sensation and a given degree of fatigue.
9. Nature and duration of after-images.
10. Measurement of amount of contrast.
11. Accuracy with which distance can be judged with one and with two eyes.
12. Test with stereoscope and for struggle of the two fields of vision.
13. Errors of perception, including bisection of line, drawing of square, &c.
14. Colour and arrangement of colours preferred. Shape of figure and of rectangle preferred.

Hearing.

15. Least perceptible sound and least noticeable difference in intensity for sounds of three degrees of loudness.
16. Lowest and highest tone audible, least perceptible difference in pitch for C, C', C'', and point where intervals and chords (in melody and harmony) are just noticed to be out of tune.
17. Judgment of absolute pitch and of the nature of intervals, chords and dischords.
18. Number and nature of the overtones which can be heard with and without resonators.
19. Accuracy with which direction and distance of sounds can be judged.
20. Accuracy with which a rhythm can be followed and complexity of rhythm can be grasped.
21. Point at which loudness and shrillness of sound become painful. Point at which beats are the most disagreeable.
22. Sound of nature most agreeable. Musical tone, chord, instrument and composition preferred.

Taste and Smell.

23. Least perceptible amount of cane-sugar, quinine, cooking salt and sulphuric acid, and determination of the parts of the mouth with which they are tasted.

24. Least perceptible amount of camphor and bromine.

25. Tastes and smells found to be peculiarly agreeable and disagreeable.

Touch and Temperature.

26. Least noticeable pressure for different parts of the body.

27. Least noticeable difference in pressure, with weights of 10, 100 and 1000 gms.

28. Measurement of sensation-areas in different parts of the body.

29. Accuracy with which the amount and direction of the motion of a point over the skin can be judged.

30. Least noticeable difference in temperature.

31. Mapping out of heat, cold and pressure spots on the skin.

32. The point at which pressure and heat and cold cause pain.

Sense of Effort and Movement.¹

33. Least noticeable difference in weight, in lifting weights of 10, 100 and 1000 gms.

34. Force of squeeze of hands, pressure with thumb and forefinger and pull as archer.

35. Maximum and normal rate of movement.

36. Accuracy with which the force, extent and rate of active and passive movements can be judged.

Mental Time.

37. The time stimuli must work on the ear and eye in order to call forth sensations.

38. The reaction-time for sound, light, pressure and electrical stimulation.

39. The perception-time for colours, objects, letters and words.

40. The time of naming colours, objects, letters and words.

41. The time it takes to remember and to come to a decision.

42. The time of mental association.

43. The effects of attention, practice and fatigue on mental time.

Mental Intensity.

44. Results of different methods used for determining the least noticeable difference in sensation.

45. Mental intensity as a function of mental time.

¹ Organic sensations and sensations of motion, equilibrium and dizziness, should perhaps be included in this series.

Mental Extensity.

46. Number of impressions which can be simultaneously perceived.

47. Number of successive impressions which can be correctly repeated, and number of times a larger number of successive impressions must be heard or seen in order that they may be correctly repeated.

48. The rate at which a simple sensation fades from memory.

49. Accuracy with which intervals of time can be remembered.

50. The correlation of mental time, intensity and extensity.

Remarks by FRANCIS GALTON, F.R.S.

(a) One of the most important objects of measurement is hardly if at all alluded to here and should be emphasised. It is to obtain a general knowledge of the capacities of a man by sinking shafts, as it were, at a few critical points. In order to ascertain the best points for the purpose, the sets of measures should be compared with an independent estimate of the man's powers. We thus may learn which of the measures are the most instructive. The sort of estimate I have in view and which I would suggest should be noted [?] for private use] is something of this kind,—“mobile, eager, energetic; well shaped; successful at games requiring good eye and hand; sensitive; good at music and drawing”. Such estimates would be far from worthless when made after only a few minutes' talk; they ought to be exact when made of students who have been for months and years under observation. I lately saw a considerable collection of such estimates, made by a medical man for a special purpose. They were singularly searching and they hit off, with a few well chosen epithets, a very great variety of different characters. I could not induce the medical man to consent to the publication of specimens of his excellent analyses, nor even of fancy specimens. Even these would have sufficed to show that if psychologists seriously practised the art of briefly describing characters, they might raise that art to a high level.

(b) The method I have long used for testing keenness of eyesight in persons whose powers of eye-adaptation are normal, still seems to me quite effective. It is to register the greatest distance at which numerals printed in diamond type can be read. Strips of paper cut out at random from a small sheet printed all over with these numerals, are mounted on blocks set at successive distances from the eye-hole. They can easily be changed when dirty. Fair light is wanted, but that is all that is needed for ordinary test-purposes.

(c) I have constructed an instrument which is not yet quite as I desire, of which the first part would I think greatly facilitate

the working with the Hipp chronograph. I had found great trouble in inducing coarse and inexperienced persons to deliver their blows aright. They bungled and struck the instrument wrongly, and often broke it. Then I made it more massive, yet still they broke it and often hurt themselves much in doing so. My present plan is to give them nothing more than one end of a long thread to hold. The other end passes round a spring reel, like the tape in a spring measuring tape. The string when left to itself will reel home much faster than the swiftest blow can travel. All that the experimentee does is to *retard* it; the quickest man retarding it the least. The string travels smoothly and swiftly in a straight line between two eyelet holes. A bead attached to that part of the string would make the necessary breaks of electric contact with great neatness. The thread has a stop to check it when it has run far enough home. My reel is nothing more than a very light wooden wheel with a groove in it, some 3 inches in diameter, and with a brass axis turning freely between fixed points. One thread passes round the axis, and is tied at the other end to an india rubber band. The other thread passes in the opposite direction round the grooved wheel, and then through the eyelet holes. The experimentee is placed well back, quite clear of the apparatus. Nothing can act better than this part of my new instrument.

(d) I now use a very neat, compact, and effective apparatus (made for me by Groves, 89, Bolsover Street, Portland Street, W.) which is a half-second's pendulum, held by a detent 18° from the vertical. The blow of a released hammer upon the detent gives the sound-signal and simultaneously lets the pendulum go. An elastic thread is fixed to the pendulum parallel to its axis, but about $1\frac{1}{2}$ inch apart from it. As the pendulum oscillates this thread travels between 2 bars; the one fixed, the other movable. The fixed bar lies horizontally between the pendulum and the thread and is graduated. The movable bar nips the thread when a key is touched. Doing this, constitutes the response. The pendulum itself receives no jar through the act, owing to the elasticity of the thread. The graduations on the bar, that forms the chord to an arc of 18° on each side of the vertical, are calculated and published in the *Jour. Anthropol. Inst.* early last year, 1889, together with my description of the first form of the instrument. I exhibited the revised form of it at the British Association last autumn; a brief description of it will appear in their Journal. The instrument is arranged for sight-signals as well. It is also arranged to measure the rapidity with which any given act can be performed. The experimentee touches a key that releases the pendulum; then he performs the act; finally he touches the second key, that causes the thread to be nipped.

VI.—DISCUSSION.

THE EVOLUTION OF INDUCTIVE THOUGHT.

By HIRAM M. STANLEY.

The treatment of Thought is one of the most meagre and unsatisfactory portions of modern psychology, and this is in part due to its being bandied back and forth between psychology and logic, and in part to the excessive attention given to physiological and experimental psychology which deals for the most part with lower processes. The logical treatment of thought differs from the psychological by dealing only with thought as expressed in language—term, proposition, and syllogism; whereas psychology investigates thought, not as formulated by its instrument, speech, but in and for itself as a mental product and process. For psychology, thought and all mentality is a sum of dynamic units which have to be investigated in their actions and reactions, in their combinations and differentiations. But logic is formal, it determines and develops the normal forms of process as given in language, and thus misses the inner nature and genetic significance of the processes it considers. Since the efforts of logic are directed toward a formal simplification and unification it fails to note much of the complexity which lies hidden in all thought; and which can only be revealed by what one may by analogy term an embryological and histological investigation. On the other hand it makes formal divisions and minute distinctions where psychological analysis will show essential unity. The descriptive and elaborative method of logic domesticates thought; but the psychological method of genetic analysis deals with uncultivated and undomesticated thought, and this is the method I shall attempt to use in discussing the rise and progress of the inductive process.

What is the *rationale* of the inductive process? How and why should mere iteration lead to expectancy of reiteration? How comes it that all minds have a native tendency to rely on the uniformity of nature and interpret the future in terms of the past, the unknown in terms of the known? It seems essentially without reason to conclude to recurrence from even the most frequent occurrence, and in fact is it not more rational to expect the contrary? If we have observed bodies unsupported to fall in 1000 instances would it not be the part of reason to suppose that in the 1001st instance this particular combination would be exhausted, and that it was time for nature to stop?

But it is to be noticed that this very reason which we have just used rests on uniformity of nature—the very law we were im-

peaching—as experienced in the past and applied to the future; only, it is a negative law of omissions, literally law of reiteration of unreiterations. Thus if reason takes the law of uniformity of nature to task it can only do so by assuming it. J. S. Mill in his treatment of this matter (*Logic* bk. iii, chap. 3, sec. 2) falls into an error. It is, indeed, true, as he says, that some occurrences repeated suggest cessation and not recurrence, as when we have several consecutive cloudy days, we expect a bright one, or having had several rainy seasons we expect a dry one; but it is plainly wrong to regard this, as he does, as a contradiction of the principle of uniformity of nature. On the contrary, this is a very good example of it. Experience of intermittent character of bad weather in the past leads to expectancy of its re-intermittency for the future, and the oftener the experience, the stronger the belief as to the nature of the still unexperienced. A negative uniformity is as much a uniformity as a positive.

It is plain, indeed, that if the future is to be apprehended at all, it must be in terms of the past. To interpret the unknown and unexperienced, to conceive it in any manner, the mind must use the terms of experience. Even the rapt dream of the mystic is a piece-work of experience. Now experience is itself a consolidation of elements, a series of groupings, established by frequent coalitions; and hence it flows from the nature of experience that the more frequently an event occurs with certain associations, the more strongly we expect it to occur. Yet, while the necessity of this inductive method of apprehension is obvious, if there is to be any apprehension of the future and unobserved, it is still the tendency of the mind to apply the principle of sufficient reason to all things, even to matters of necessity. We may apply the principle of sufficient reason to the principle itself, and inquire the reasonableness of reason, and this is in fact what we do in demanding a reason for the inductive tendency; for reasoning is a mediating, a going to that which is beyond through a ground, and the mediate term, if found at all, must be found in experience. That the future is always given, and must be given, in terms of the past is thus a principle and postulate of all reason. Reason is the obverse in consciousness of the rational, the uniformity of nature. Since consciousness is in nature and of nature, it partakes in the fundamental characteristics of nature, law, order, or uniformity, and it cognises this order.

While we cannot satisfy the speculative reason as to the reasonableness of inductive experience, we can still inquire how the inductive tendency arose as a biological and psychological fact. The reason for the rise of reason as inductive, as anticipatory function, is obvious by assuming that interest and progress of organism is rational end secured through struggle for existence. Certain bodies in uniform nature, which we term organisms, are distinguished by the peculiar quality of their uniformity. Unlike other bodies the self-uniformity is more than passive, it is active;

it is more than mere mechanical accord, it is self-adjustment through felt stimulus for the preservation of the individual and progress of the race. Experience once begun as felt stimulus, it grows by continual self-reference; that is, the new experience is always qualified by the past, the quality of response is always determined by previous experience. Experience is thus a *continuum*, an integrating and cumulating whole. But it is by serviceability that experience arises and progresses, and serviceable reactions are those which, qualified by the past, are thus useful to future well-being. Mere past reference is in itself of no value except so far as through association it determines reactions which are anticipatory in their nature. Thus a primary element in all experience is its inductive quality. Experience is then more than an increasing susceptibility of reaction through repetition. By repeated playing the violin case becomes more and more susceptible so that the quality of its response is determined by the past, but there is no element of feeling, no self-preservation and future reference, and it is only by a metaphor that we speak of the experience of a violin. Experience is practical application of repetition especially as associated, whereby the being gains for itself; and this involves some mentality. The body feels, and this present feeling is so qualified by association with past feelings as to make the consequent reaction self-preservative and thus anticipatory in its nature.

We recognise that the living animal is differentiated from the lifeless by its feeling-experience and its anticipatory reactions. The dead and non-living body never re-acts in an anticipatory manner, never defends or offends. Even the lowest organism, which is only potentially an organism, continually organising but never organised, manifests in its appropriation of food and defence from injury this peculiar power. The body is living because it maintains itself by experiential adaptation to its environment. The organism is blindly anticipatory in its activity, and without cognition; it, for instance, is enabled to avoid the hurtful before it has fully met its annihilatory force. This is accomplished in low forms by ciliae, by which, through injury to a minute part, harm is fended from the organism as a whole. By partial injury complete loss is avoided, and this is accomplished through felt pain and experiential adaptation. There is, of course, in this early form of mentality no apprehension, but there is inductive act, that is, an act which implies the value of experience in the interpretation of the unexperienced in terms of experience. This anticipatory action, which is secured in living beings by projections and extensions of the animal substance, in the form of ciliae and tentacles, is what we may term the method of incipency. Serious harm is warded off from the whole through injury to a small part. The living being reacts to merely incipient harm, and secures by offensive and defensive measures some security. Incipient injury induces retractile and contrac-

tile movements, and those animals will have the advantage which respond the quickest and which by any chance-extensions of the body appreciate danger with least injury and loss of substance. These extensions serve not only as sensory, but also as motor apparatus to convey the organism to the useful and from the hurtful. All such action is practically appreciatory of the future as like the past; it acts upon the desirability or undesirability of immediately approaching, on basis of former experience. This reaction to the relatively small stimulus as forewarning is effected by a present pleasure or pain; there is no knowledge of object pleasurable or painful, much less apprehension of future in the light of the past, but the anticipatory value is given through unconscious integration of feeling-experiences with the present pleasure or pain. Past experiences have determined the delicacy of the reaction and given the anticipatory force. Partial experience answers for whole; the organism reacts to incipency and thus escapes a total hurtful experience, or by active effort embraces a total advantageous experience. This is practical application of the future validity of experience, and this method of incipency is practically the method of sign, although there is no recognition of sign. Pain acts as sign of injury and destruction, pleasure as sign of benefit and preservation before there is any apprehension of object. Mind in its earliest forms must be regarded as very intermittent pains and pleasures, gradually becoming more frequent and constant through service in the struggle for existence. These impressions of pain and pleasure do not, however, exist in and for themselves alone, they have a significance, a cumulative bearing from the past to adapt the being to the future, to time- and space-relations. That the organism does not perceive this significance is evident, but that it acts upon it is obvious. This is then a true experience, though it does not recognise itself.

We may very plausibly regard the first mental phenomenon, the first experience, to have been a pain which came as a salvation of the individual from death through inducing a reaction which could not have been brought about in any other way. This first emergence into consciousness, notwithstanding its vital significance must have been a very dull and slight form, something akin to an evanescent pain which sometimes awakens consciousness when we are nearly asleep. But through struggle for existence the organism becomes more and more susceptible to pleasure and pain; differences of intensity develop, and there is response not only for the supremely critical moment of self-preservation, but also on occasions of serious injury, of self-sustenance, and of self-reproduction. The blind, and purely pleasure-and-pain existence is, however, as we have shown, a true experience and learning by experience, and is really inductive in its quality.

It is plain that this feeling without knowledge can do much

for the organism ; it can lift it above lifeless matter by securing for it self-preservative actions. However, the organism does not yet cognise this bearing of its own sensations and activities, it knows neither itself nor externality. But reaction to unlocalised pleasure and pain is spasmodic and undifferentiated, and the organism which soonest attains some recognition of part by which pleasure or pain enters gains a large advantage in the struggle for existence. Knowledge first comes as a dim awareness of something as specially connected with the suffering, till increasing in frequency these states are re-inforced from the past, and prepare the being for the future event in a truly inductive though unconscious fashion just as in the case of simple feeling. It is quite probable that the organism externalises before it localises, and knows not so much the part as paining, as a something bringing pain. But both these tendencies develop in close interaction, and the living being gradually understands its body as having a peculiar and permanent relation to its feeling-experiences. So far, however, the animal has not got beyond itself or what is in immediate contact. Yet pain and pleasure in slight degrees suffice to make reactions which ward off greater pains or lead to greater pleasures, and this is effected by such economy in differentiation as shows some recognition of part affected and object affecting. So far, there is no apprehension of succession, no knowledge of time, future or past, nor of space as distance. But it is obviously of the utmost importance to the living being to appreciate approach of enemies, rather than in tentacular fashion to experience only contacts. While it is an important gain that slightly hurtful contacts by being associated with the more hurtful cause reactions which save the individual from the more hurtful, still it is a far more important step for the un hurtful, through perception at a distance, to be associated with the hurtful so as to serve as a guard. This is accomplished through sense of smell, and specially through the higher senses, hearing and sight, whereby comparatively indifferent excitations become signs of the experienceable or of the approaching experience. The cognition of an object not simply as affecting, but as about to affect, the apprehension of any event as future, is always in terms of past associated experience, and thus this kind of experience is really inductive, although there is not as yet any inducing. In all the forms of experience which I have noticed it is plain that a renewal of an experience receives re-inforcement from the past and has anticipatory value. Induction as generalising tendency in temporal form effected by repetition and association is then to be traced in all early experience as implied and applied factor. From having considered mind as governed by mere inductive association we now pass to the consideration of mind as inducing, as thinking inductively.

The combinations of early experience are forced upon the mind, the mind does not search for them. States of consciousness are

related and co-related by association into experience, but this experience has not become aware of itself, and cannot purposely extend itself. Thinking is the mind going out after its object, a reaching out from the actual and present experience ; but association is merely recipient, the mind is carried to the associated image, while in thought the mind carries itself. In association the mind is led from step to step ; in thought it picks its own way. Thought is conscious and controlled association ; it is associating, actively joining or disjoining. The struggle of existence awakens experience to this thought-stage where it knows and directs itself. It is obviously of the utmost importance for the progress and continuance of life that its intelligence become selective and directive, that it consciously apply experience to the still unexperienced, and so be capable of entering into the more complex reactions which are entirely impossible for the associative stage. It is thus only that beings can arise who are more than creatures of circumstance, who become rulers of circumstance by designing and applying. The evolution from mechanical experience to this self-directive stage as a permanent state is accomplished but slowly. Thought originates when, under the pressure of extreme hunger or imminent death, in some new circumstance the organism seeks a new association as the old association fails to awaken the proper reaction. Through an active learning by experience, through the impulse of adaptation intelligently applied, it saves itself in the struggle for existence. Thought may also originate when the old association revives but only partially, and the animal, pushed by stress of circumstance, through direct effort brings the association into full force by a conscious relating. When a being with awareness of the future as future, or (more broadly stated) with awareness of the unexperienced as unexperienced, searches experience for its interpretation, and does not merely let the past as explanatory come to it, this mental activity is to be termed thinking inductively. This thinking is, at first and for a long time, unconscious of its process while thoroughly conscious of the producing and of the product : the mind combines without being conscious of the quality of its act ; but it is conscious of object, not in itself alone, nor as merely related, but as something which it does itself connect and relate. Association or relatedness exists in mind before power of relating arises ; the action occurs before the self-acting begins, and this latter continues for a long time before the mind apprehends this as a method, and extends it indefinitely by conscious direction. In general terms, it may be stated as a law of growth of mind that experience is integrated before it integrates itself, and long before it consciously integrates itself. Development precedes self-development, and this precedes a self-development which is self-conscious. The associating stage is but a purposive and conscious carrying on of what has already been carried on in the association-stage, and the inductive character of the former will, of course,

appear in the latter stage. However, I will now endeavour to trace the inductive element in a special way by some analysis of thought in the usually accepted divisions of conception, judgment and reasoning.

It is evident that a mere feeling-experience cannot enter into a thought-stage. There is no reaching from one feeling to another, but feelings are associated into experience by a certain outward force, rather than by a free inward tendency. The association is formed, indeed, in the mind and by the mind, but this grouping is brought about without perception of relation or object, and hence there is no conscious joining. Thought as a relating of objects can only arise after the cognition of objects arises; in short, relating of knowledges must come after knowledge. Perceptual experience precedes conceptual, but still, so far as there is a true putting together in perception, there is a true thinking. A percept, even in its earliest and crudest form is never absolutely simple; it is always associated with feeling and also differentiated within itself. So far as the complex individual percept is formed by an active putting together of its elements by the mind, and not a mere passive association, we have true thinking. Thinking is essentially a conscious joining or disjoining of experiences, and this act is precisely the same in nature, whether it be a joining of characteristics in a percept or with a percept, or whether it be a combining of common characteristics into the concept, strictly so called, as representative and typical in its function. A child has tasted an orange and found it sweet; has related the sweetness to the object. Upon the presentation of another orange to the child some time after the first experience, the image of sweetness, if it is still coherent with image of yellow round thing, will be called up by mere passive association; but if not fully coherent, the child may bring it up by active association or thought. How far the image of sweetness is thrown into the mind by mere association, and how far brought in by act of thought, can only be inferred in particular cases from gesture, speech and action. In some cases both elements will be found; in some, only one. However, in this second orange-experience, as far as there is active conjoining of mental products, a definite adding to present percept of sweet taste as experienceable by conscious reference to former percept (taste-experience), we must recognise a genuine thought-process. The thinking consists in the joining of sensation of taste to an object, not as a present, but as a future experience, on the basis of some past experience. Here is a true mediation or reasoning of inductive type, and also a true concept-process, that is, a taking together, a conscious uniting, although the product is still particular. The nearest approach to expressing this psychological process in language is to say, 'This round yellow is this sweet, because this round yellow was this sweet before'. The correlating process rests upon the relating process accom-

plished at first experience of orange-tasting whereby the taste was related to the thing tasted. This relating may be thrust upon the mind, or the mind may consciously and actively assimilate. Thought in the wide sense of the term may be made to include all mediate or immediate conscious conjoining of experiences, whether the product be general or particular.

Mediacy is certainly, however, accomplished before commonness is noted, which in ordinary usage is concept-making. The grouping of the particular taste with the particular sight and touch on basis of past experience, does not give a general result. The mediate term of past experience of taste which the child brings up on sight of orange and applies to the present case does not suggest commonness, but constancy of experience, for at first it knows things only as identical, and not as separate, or as like or unlike. The method of this early intelligence is that of identifying, 'The orange was sweet and is sweet'; and not that of common characterising, 'Oranges are sweet, and this is an orange'. The child does not discriminate or understand that the object of its first experience is, by reason of this experience, no longer to be experienced; it has not attained notion of disappearance. It does not cognise the orange as one of a group or class, having as common characters roundness, sweetness and yellowness, and from presence of round-yellow in any instance infer sweet; but it knows orange only as this particular object of past, present and future experience. Many of the early thought-experiences of children are to be interpreted rather upon this identity-method than upon the usual interpretation of true concepts. Thus the child who calls every person of certain age, dress, &c., 'Papa,' is not thinking of a papa, or class of papas, but of the papa. This is mistaken identity: the common and like is the same, and the child requires considerable discrimination before it attains to notion of papa in general. Same and not-same are discriminated before like and unlike, and hence young children use common names as proper. Now the mental product achieved by the child, which, as expressed in words, we term the papa, may be styled a particular concept, a gathering together of sight-sensations, and associating sound- and touch-sensations with these so that any generally like group of sight-sensations enables the child to call up on basis of past experience the associated sound and touch, to expect the gentle word and caress. The child in identifying the orange, 'This round yellow thing is the sweet thing,' is bringing together with a certain general force, not of common characterisation, indeed, but of temporal significance as permanent grouping. Animals and young children think mostly on the identifying plan; they join to and expect for a present experience what has been conjoined with it in past experience, but the object is same-not like.

How then does the child come to knowledge of things as like, to form a class of oranges after regarding all oranges as the

orange? Pass oranges before a young child one after the other so that one only is in sight, and the child will probably know only one orange as the same continually re-appearing. The image formed will, however, be more or less composite, the mental product will be a concept-image, as being a re-inforcement and exaggeration of common characters and a suppression of individual; but for practical purposes it is still a particular concept, that is, the child applies it to the one and not the many, and does not recognise its representative nature. A general image as a group of common qualities may be thus attained before consciousness of this generality is reached.

If now two or three oranges are presented to the child at the same time, it will learn to discriminate them as separate co-existences, having characters in common, roundness, yellowness, &c.; the objects will be recognised as individuals belonging to class round-yellow things. Here a general image having a general import is achieved. The particular characters round, yellow, sweet, which always centred in and made up the individual orange, are recognised to have general scope in applying to many objects. Groups of characters had been achieved before by particular thinking, but now by general thought, groups of characters as common are formed. From the practically coincident impressions it gains the notion orange, so that it recognises new individuals as individuals, and not as the individual or single object, as in the earlier and cruder identity method of thinking. The mind now—instead of saying 'Same impressions, same object'—says 'Same impressions, like objects'. Instead of making an object as a group of qualities, it makes a class of objects having the group of qualities in common. Concept-forming is thus often but an extension from what I have termed the particular concept; the group of qualities formed as characterising the thing is through experience with co-existences predicated of things. Notion or idea of the orange precedes notion or idea of orange; but both are truly notions or concepts, a taking together of impressions, one of particular, the other of general import. The general significance of the particular group is first forced upon the mind by experience, but soon the mind generalises as well as notices generalisations brought to it. Gradually the mind obtains power to generalise not only from co-existences but from successions, and later still to generalise by abstraction, to compare and pick out common features amidst the unlike, to search for unity in diversity.

The rise of generalising power is through the struggle for existence, it originates like all other mental processes in practical needs. Law is thereby not simply acted upon or merely recognised as in the associative stage; it is definitely sought for and applied. Art arises, and also science. The ability, given by generalising power, of dealing with things in the lump, becomes of signal service, and specially distinguishes man. But the

primary value of the concept in all its stages is not as a summation of experience, but as a guide for the future. Through reiterated grouping the concept-group is recognised as permanent factor so that one element of a group being given other elements are expected through a conscious assimilation with the past experience. The concept answering to the word orange, for example, is the mental product recognising a constant co-existence of certain qualities of shape, colour, size, taste, &c., so that from occurrence of one or more we infer other or others. Concepts are the inner groupings, the mental synthesising, which interpret the outer groupings that we term laws of nature. In all this we see the inductive element in its conscious form, experience developing itself by anticipating future in terms of past.

We have now to consider briefly the psychological nature of judgment and reasoning with special reference to the inductive feature. Logically judgment is any connecting, *plus* affirming of reality, as effected through the copula. The copula is made not only to denote relation, but reality of relation, to express not only the act of connecting, but also its validity for the case in hand. Psychologically, judging may be regarded as any thinking, as any relating without reference to the things related, whether it be a joining of the concept 'reality' to some other concept as a concept-forming process, or any joining of other elements. I have already discussed the nature of relating *per se*, but on the topic of judgment a word is to be said about the proposition-form. In all thinking there are the two things joined—subject and predicate in language-expression—and the act of joining, or copula in language-expression; thus all thought is capable of the proposition-form. Indeed, the word-form cannot express a thinking but only a thought as a consolidated and single product, and as a sign of process. The word is a summary of process and relations, but it cannot express process as concept-forming or judging. The word, orange, signifies for the mind by symbolic and short-hand method, 'Thing is sweet *plus* thing is yellow, &c.'; but as far as process happens, and not simultaneous composite representation, the process is capable of proposition-form. All relatings or joinings even of particulars to particulars are of the proposition-type, and I must dissent from the common view that two percepts cannot stand in subject-predicate relations. As I have before discussed, the relating of particular to particular is thinking, and to say 'This sweet belongs to this yellow' is awkward indeed, but still psychologically proper. Every proposition on the other hand is susceptible of analysis as expressive of concept-forming relating. The proposition 'Man is mortal' is expression of a mental process of joining; the concept mortal is either attached to or detached from the concept man, according as we consider the process as synthetic or analytic. If it be a grouping or concept-forming in full sense, it means that in forming the concept man, we add to the already gathered qualities the quality 'mortal'

on basis of experience. The child first notices deaths in cases of John, Peter, &c., whom it knows to belong to the class 'men,' forms the concept 'mortal' and adds it by generalisation to the whole class and enlarges concept 'man' by one quality. This proposition, as denoting inductive concept-forming, expresses the act of incorporating on basis of experience the quality mortal into the quality-group man. As analytic, as a detaching of what has been grouped, the proposition still expresses joining, and until the statement becomes purely formal and practically meaningless the re-joining is always a strengthening of the concept, and formative in its value.

All uniting or relating is, however, more than a bare connecting; it is a definite mode of relating, it has a form; and the first and fundamental form is that of time and space, by which all relating has the inductive quality of relying upon the past for the interpretation of the future. But thought as self-active mentality is specially stimulated and controlled by the form of reality. All relatings are not, however, influenced by sense of reality, and hence belief is not coincident with judgment in the large sense. Affirmation or denial of actuality or reality is a kind of joining, but is not joining *per se*. The infant joins taste of sweetness with percept round-yellow for the first time and for many following times with no reference to reality or unreality. 'This round-yellow is this sweet' expresses a mere connecting, a bare relating, but as neither real nor unreal. There is no emphasis laid on the copula by which it expresses more than a mere joining. But let the perfect tranquillity of the child's experience be broken in upon by discord of appearance and reality, let the child once have a bitter experience with a round lemon, then its future conjoinings of round-yellow and sweet will be more or less tinged by sense of possibility of error, and emphasis will be laid on the copula, 'That is sweet'. Through other such experiences with other of its thought-groups, the child generalises to the universal significance of reality and unreality for all its thinking; hence, all conjoinings with their copula-expressions attain a new force and quality from this induction. In the light of fallibility as making up a part of the concept 'experience' all thought-experience modifies itself by this self-relation. Reality becomes so constant and universal for all thought-life that mature thought can never escape it. Hegel tried to rise superior to the notion of existence, but psychologically, at least, he failed. The conception or induction of reality becomes a necessary form of thought by being united with all unitings. Judgment in the narrow sense may be defined as all those relatings in which the reality of the relation is affirmed or denied.

Lastly a word on the nature of reasoning. Reasoning is mediatorial; the joining is accomplished through one or more mediatees. Most if not all thinking is by mediating; joining

proceeds only upon ground or basis, whether recognised or not as such. 'Kings are mortal' is the language-expression of a conjoining effected either through the particular mediate term, John, or terms John, Peter, &c., or through the general mediate term men. In both cases the conjoining is effected through subjoining of the mediate term to both the elements to be conjoined. In the first case the process is: 'John is mortal, John is king, therefore kings are mortal'. This relating of king and mortal is strengthened by subjoining for other particular mediates, Peter, James, &c. In the second case the process is: 'Men are mortal, kings are men, therefore kings are mortal'. In both cases the appeal is to constancy of coherence of a quality to a quality-group, in the first, mortality coherent with king John, hence coherent with kings; in the second, kings have mortality because mortality is coherent with the group man = kings + others. In both cases the generalising tendency, that is, the inductive quality, is the main point and not the method of mediation. In both processes the concept king is filled out by the additional quality mortality, and there is real gain in generalising and concept-forming whether the mind accomplishes it by the more special or more general reference. Induction in the large sense is thus inclusive of both induction and deduction in the restricted sense as determined by the mode of mediation. Inductive thinking, as we have treated it, is the joining which generalises, whatever be the means used to this end. Induction as generalising tendency is imbedded in experience, and is the largest factor in all its development.

"THE GENESIS OF THE COGNITION OF PHYSICAL REALITY."

By JULIUS PIKLER.

I had just completed an Essay, in which I had long been engaged, on "The Psychology of the Belief in Objective Existence," when Mr. Stout's article, "On the Genesis of the Cognition of Physical Reality" appeared in the January number of *MIND*. The contents of that article were so diametrically opposed to my own views on the same subject that the only conclusion I could arrive at was that either Mr. Stout or I must be seriously wrong. Careful reflection only confirmed me in my own views. This has induced me to append to my Essay (which will soon be published in a small volume) some observations on Mr. Stout's article, and I desire to submit them first to the readers of *MIND*.

Mr. Stout's Criticism on Mill.—I must begin with a brief survey of Mr. Stout's criticism on Mill's famous chapter, "The Psychological Theory of the Belief in an External World". The contents of half of his first paragraph may be summed up in the following sentence: "[Mill's] possibilities, so long as they are not realised, are nothing actual, *i.e.*, nothing at all". But this objection amounts only to a bare denial of Mill's doctrine. It is merely asserting of a thing that it is *not* white, when someone else maintains that it *is*. There are, in fact, two sorts of actualities: actual presentations and actual objective existence (or occurrence). Possible presentations do not belong to the former class of actualities; the latter class of actualities, on the other hand, are said by Mill to be nothing else but possible presentations. Mr. Stout's statement therefore is simply a contradiction of what was maintained by Mill, and, as such, proves nothing.

The same remark equally applies to his next objection. He says: "[Mill's] view may or may not be true; for our purpose it is sufficient to point out that it is diametrically opposed to the irresistible conviction of the ordinary mind. Mill's account of the material world may represent that world as it really is; but it certainly does not represent it as it normally appears to us." Now I, for my part, find nothing in my consciousness diametrically opposed to Mill's account. On the contrary, when, ignorant still of philosophy, I first heard these doctrines they appeared to me as irresistibly true. No doubt, I had not arrived of myself at the formulation of the doctrines—just as my teachers anticipated me in the matter of the axioms of mathematics; but I no less firmly believe in the one than in the other. This conviction is shared by that larger portion of philosophers who are not realists. In their opinion as well as mine, men generally understand by the expression that a material thing somewhere

exists, acts and changes, nothing else but that certain presentations are possible there.

But Mr. Stout, in the same paragraph, goes farther. He says: "I think we have good reason for saying that it did not so appear even to Mill; for he speaks of changes taking place in the grouped possibilities. . . . Now a change in a naked possibility is at the time when it is supposed to take place a change in nothing, and a change in nothing is no change at all. This could not be what Mill really meant, but only what he fancied himself to mean." If this were true, if Mill's formula did not cover the objective changes in things, if he contradicted himself, this might constitute a real argument against his theory. But, in point of fact, change occasions no greater difficulty to that theory than unchanged existence. By objective change Mill understands only the possibility of a *presentation of change*. Mr. Stout will not deny that there are presentations of change, and if this is true, then there are also possible presentations of change, or possibilities of such presentations of change quite as much as there are possibilities of presentations of things.

The second paragraph of the criticism is, again, a simple negation of Mill's theory, and may be passed over with that remark.

The third paragraph points the following quotation from Kant against Mill:—"The apprehension of the manifold in the phenomenal appearance of a house that stands before me is successive. The question then arises, whether the manifold of the house itself be successive, which, of course, no one would admit." This objection can be easily disposed of. That the different parts of the house are coexistent does not mean, according to Mill's theory, that there is a possibility of perceiving them simultaneously, but it means that there are a number of different simultaneous possibilities of presentations, from amongst which the individual may select any at will. Our belief that there is a world consisting of coexisting things means, according to this theory, nothing else but our belief that the possibility of selection from amongst many different presentations subsists for us at any moment.

All the arguments of Mr. Stout are therefore of no avail against Mill.

Mental Activity and Not-Self.—The following quotation gives what Mr. Stout regards as the most essential part of his own theory:—

"Apart from operation of extraneous conditions, the redistribution of attention normally takes place in such a manner that the focussed presentation *A* gradually and continuously disappears and gives place to a nascent presentation *B*. . . . In all these changes . . . the transference of attention is orderly and continuous. . . . But this orderly redistribution of mental activity determined by interest and preformed associations, is perpetually modified and controlled by interfering conditions. . . . As I sit absorbed in study, I am rudely interrupted by the sounds from a barrel-organ in the street.

. . . In so far as the mind becomes in this manner definitely aware of the limitations and interruption of its own activity, it finds itself confronted by a problem, which it can solve only by reference to an activity other than its own. . . . This seems to me to be an indispensable moment in the development of the perception of physical reality. *The antithesis of mental activity and passivity*, when it becomes sufficiently definite, enables and compels the individual to posit some agency separate from, and independent of, his own private experience."

To this theory there are opposed three facts, each of them sufficient, singly, to refute it.

The first is that, apart from exceptional efforts, the feeling, sensation or presentation of mental activity is but a very faint and indistinct presentation, at all events so faint and indistinct that the interruption of its orderly redistribution by the occurrence of "interfering conditions" cannot induce the individual to attribute these external conditions to another activity which he would conceive to be modelled after the former. On this point I appeal to general consciousness. Some readers may have had a contrary individual experience with regard to the intensity and distinctness of that presentation. But that it holds good with the majority of mankind is proved by the circumstance that that presentation or feeling, as conceived by Mr. Stout's theory, is only a discovery of a few, more modern, psychologists. Earlier psychologists speak of activity of mind, but they know nothing of any such feelings of it. The belief in the objective existence of the external world is nearly fully developed in the child as soon as it begins to employ coherent sentences in speaking. According to Mr. Stout the child at that age must have got beyond this observation, generalisation and inference: 'An agency operates within me in orderly and normal fashion. It is sometimes interrupted. When this happens it is the effect of an external agency.' Mr. Stout thus supposes the child to be invested with a capacity for self-observation superior to, and more precise than, that actually betrayed (in Mr. Stout's opinion) by the large majority of the professional psychologists of all ages. This cannot be correct. In point of fact such observation and generalisation cannot really be performed by the child.

The second fact is that the feeling of what Mr. Stout calls the interruption of activity, is likewise so indistinct that it cannot produce the result attributed to it. But this will be more apparent in establishing the third fact.

This third fact constitutes the strongest argument against Mr. Stout. It consists, on the one hand, in this that the so-called interruptions take place not only in consequence of presentations of things and occurrences of the external world, but also through subjective presentations. There is no process of reflection so regular as to be exempt from being "interrupted" by sudden flashes of thought. Interruptions are likewise caused by

sudden cravings, by unaccountable good humour or depression, by impatience, by memories, by hunger, thirst, sleepiness, fatigue, or bodily ailments. On the other hand, presentations of external things and events appear and follow each other—oftener through our own activity and movements than of themselves—in just as regular succession as the thoughts during uninterrupted reflection. Our motor activity greatly resembles mental activity in its stricter sense. Every kind of presentation therefore may appear and disappear in both a gradual and orderly manner (as a consequence of our own activity) and an interruptive manner. The pretended "fundamental and pervading incoherence within the sphere of individual experience" therefore, unfortunately for Mr. Stout's theory, does *not* coincide with the division between thing-presentations and subjective presentations, and hence cannot be identical with it. The objects that come into the way of mental activity and must be worked up by it, are presentations in general, subjective as well as presentations of things,—objects in Locke's sense and not only the objects of the external world.

Anthropomorphic conception of Thing-presentations. But the above "indispensable moment," is, according to Mr. Stout, "only one step, although a most important one, towards the solution of the problem before us". Farther—

"It is necessary to show how the contents of tactile, visual and other presentations in all their concrete variety come to be apprehended as existing independently of individual thought and perception The mode in which this takes place is in general as follows. Certain changes within the field of consciousness are uniformly attendant upon our own motor activity. Similar changes also take place of themselves apart from any action of ours. In order to make our experience self-consistent we are constrained to regard these variations as due to something not ourselves exercising a motor activity analogous to our own."

Mr. Stout, throughout, describes the child as continually busy propounding anthropomorphic hypotheses concerning his thing-presentations. Although I know that not only Mr. Stout but almost all of the more modern realists would like to make us believe this fact, yet I decline to do so unless other proofs are adduced in its favour than the mere assertion that the child is "compelled," "impelled," or "constrained" to go through this sort of mental activity. Moreover, weighty proofs speak against it. When we are grown up we have no anthropomorphic conceptions of this kind. We do not conceive inanimate things as making efforts and possessing activity similar to our own (for it is precisely on this account that we distinguish them from animate beings), and not one of us can remember a change of his ideas in this respect. It is equally certain that one of the first distinctions we make is that between things animate and inanimate. We never see inanimate things moving towards us, unless they are carried by an animate being, or wind, or water. The primitive

man anthropomorphises the wind ; whether he does water, too, I am not aware. Animate beings are conceived by every individual, at a very early stage, as possessing internal activity similar to his own, but there is no necessity whatever, nay everything speaks against it, for his also investing with such an activity things moved only by animate beings.

But, granting the child's anthropomorphic mode of thinking, I fail still to perceive its bearing on the problem in hand. Even if Mr. Stout's description of the child's manner of thinking were entirely true, the only objectively existing thing which the child so far gets to know would be the agency supposed ; for that behind which the child supposes the agency to be consists of his presentations, and so far the child had no reason whatever to suppose that these colours, sounds, &c., continue to remain after they have ceased to be present to him. The anthropomorphism of primitive man is, too, of such a nature that with every individual it must be unavoidably preceded by the belief in the objective existence of things.

Persistence. How does it come that we believe things to persist when they are not before us ? According to Hume and Mill this is what is first developed, and furnishes the ground for believing that our actual thing-presentations are presentations of objectively existing things. According to Mr. Stout, the process of development is just the reverse : it is through the supposition of external agency that we first of all obtain the conception of our thing-presentations as independent presentations, and only by this means do we afterwards arrive at the belief in their persistence. The step (truly all-important and indispensable) takes place in the following manner :

"We saw in § 5 how the individual is constrained to posit some agency beyond the range of his own private experience . . . There thus arises a well-marked division between self and its modes on the one hand, and the not-self and its modes on the other. The not-self must, by the conditions of its psychological genesis, be presented from the outset as that which changes or remains unchanged independently of this or that mode of motor activity on the part of the percipient. Hence variations in the content of perception, if and so far as they are traced to the motor activity of the percipient, are presented as changes in the self, i.e., in the body-complex, not in the external object. In the midst of such variations this object may remain unchanged . . . So far as resisted effort is followed by change in the content of sense-perception, we are constrained to refer the change, as such, to our own exertion ; on the other hand, so far as the change is only partial, i.e., so far as the resisting thing persists unchanged, we are constrained to interpret its persistence as uniformly connected with the kind and degree of the counter-effort, which we represent as distinct from our own. The experience of resistance is also an experience of persistence . . . All resistance is resistance to change . . . and in the normal course of human experience, the individual percipient is constrained to apprehend it as such."

This process of inference, as described by Mr. Stout, must have

surprised every reader. It is attributed by him to a child under three years of age! Surely, it is not at all right to ascribe such reasoning to the child, when the origin of the belief in objective existence can be shown to have arisen by means of such simple induction as may be seen constantly practised by grown-up persons.

Let us place by the side of each other the two accounts of the process of thought of the child under three years of age, and of how it may be supposed to learn to speak.

According to Mr. Stout :

I feel a mental activity within me. It operates now regularly, now again it is interrupted by the appearance of certain presentations (coloured surfaces, sounds, smells). *These interruptions cannot be but consequences of another agency similar to mine.* These presentations, move, resist, &c., like my body; these facts, too, necessarily must be preceded by efforts similar to those of the agency I am accustomed to feel within me.

These presentations are called by my parents, clock, dog, &c., or things. Pointing at these things they are in the habit of telling one the other that they are there. *By this my parents mean that an agency, independent of the agency within me, operates within these things.*

Those presentations change in consequence of my activity. They resist my motor efforts. All resistance is resistance to change; it is persistence. Hence those presentations have not the tendency to change by themselves. Their changes belong to the history of my agency and not to that of their agency. There is no reason for me to suppose that these presentations appear and disappear of themselves, as often as they appear before me or cease to be present. I therefore believe that they (the things) remain, persist, exist even after they cease to be present to me.

According to Mill :

I am sitting. I see before me different coloured surfaces which are called by my parents walls, pictures, clock. If I put out my hand I touch a surface which is called a table by my parents. In a word, all these surfaces are called things by my parents. I hear sounds of which my parents speak in this way, 'The watch is ticking'. I see through the window sometimes a clear sky, and clouds at other times. My parents say 'The weather changes'. If I take a piece of chalk between my fingers and draw it along the table I see that there is a white spot left; if I pass over the table with my fingers alone I see that there is no spot left. In the former case, my parents say that the chalk produces a spot.

If I turn my head away I no longer see the same surfaces, but I see the wardrobe, &c.; if I turn my head back I again see the former surfaces. I have similar experiences if I stretch out my arm in another direction and place it again on the table. If I rise and go away out of the room into the next room, as they say, I see again other things, experience other changes and actions, and hear other sounds. I perceive yet other things, changes, actions, and hear other sounds if I leave the room and go into the yard. I experience the same things when I return to the second room and then to the first which I experienced there before. Whenever I took this walk, the consequences

were the same. *I believe that this will be always so.*

My parents when they sit near me in the first room always say that there are certain things in the next room and in the yard, (namely, the same which I can see there). By this they mean that certain surfaces can be seen there, &c. They further say that certain events (changes) happen there (namely, those that can be perceived there); that one thing produces on another thing (namely, which I can observe being there near it) a change (namely, that which happens to the other thing and which could not happen to it if the first thing were not there). *By this that something is there, that something happens there, my parents therefore mean that something can be perceived there, and by this that one thing produces a change (acts) on another thing, they mean that a change might be observed there on the latter thing which could not be observed if the first thing could not be perceived there.* What I therefore believe, I, too, must state briefly thus, *that there are certain things in the next room and that certain changes and actions take place there.*

If we reflect that of these two processes of thought the one Mr. Stout ascribes to the child consists of a number of bold realistic hypotheses, capable of no proof, while that ascribed to it by Mill involves the most ordinary inductions necessary to life, we may well feel disposed to accept Mill's theory rather than that of Mr. Stout, and to express our conviction that after all we are more indebted for our belief in an external world to the regularity than to the irregularity of our sense-experience.

Budapest.

VII.—CRITICAL NOTICES.

L'Avenir de la Métaphysique fondée sur l'Expérience. Par ALFRED FOUILLÉE. Paris: Félix Alcan, 1889. Pp. xvi., 304.

As will be expected by readers of M. Fouillée's previous contributions to philosophy (see MIND v. 135; vi. 137; ix. 590; x. 448), this is a work containing much vigorous and independent thought. It offers a criticism and attempts a conciliation of present philosophical methods from the point of view of the theory of *Idées-forces*, first proclaimed by the author in his *La Liberté et le Déterminisme*, published in 1872. We have here, indeed, only the "prolegomena" to the substantive and systematic exposition of the *Principes généraux d'une philosophie des Idées-forces*, which, with a *Psychologie des Idées-forces*, is announced as in the press. But, apart altogether from this theory which the author would have us regard as the "moral" of his book, its discussion of philosophical method and of the relations of philosophy and science is of real and permanent value.

The true metaphysic, according to M. Fouillée, is "founded upon experience". As alchemy prepared the way for chemistry, so has ontology done the like for inductive metaphysic or the philosophy of experience. The transition has been effected by Kant's Criticism, the formality of which must be filled out with the content of experience. The true method of metaphysic thus reached is identical with the *a posteriori* inductive method of science. In a word, metaphysic ought to be the radical analysis and synthesis, in its content as well as in its form, of that outer and inner experience which in its totality constitutes the real. As for the distinction between phenomena and noumena, it is simply the distinction between incomplete and complete experience; and hence, while metaphysic can never attain its ideal, or complete its work, it is at every step in contact with reality. And if the synthetical part of metaphysics is, like that of science, hypothetical, or "necessarily conjectural," its analysis is equally matter of certainty.

This metaphysic of the future is only yet being organised; but its method, according to M. Fouillée, is already widely recognised as the true one. Even in Germany, "that country of great speculative adventures," the philosophy of experience has its disciples in Schopenhauer, von Hartmann, Lotze and Wundt. In England the new leaders of philosophical thought—Spencer, Clifford, Mr. Hodgson, and even the Neo-Hegelians, have emerged from "the transcendental moonlight" into "the broad daylight of experience". While, in his own country, the author can point to MM. Taine, Ravaisson, Renouvier, Guyau and others, who "have, from very different points of view, invoked experience".

The work is divided into two parts, dealing with the relation of Metaphysic to Science and to Ethics respectively, or with Scientific Positivism and Ethical Evolutionism. As against the former tendency of thought, which embraces Agnosticism as well as the stricter "Positivism," M. Fouillée maintains "*la perennité de la vraie métaphysique*". While Positivism rightly condemns "the usurpations of metaphysic, and its encroachments on the domain of the sciences, it does not touch the true metaphysic, which keeps to its own problem". Nor can positive science ever take the place of metaphysic; even if it were "unified and entire," it would still retain its partial character. "It would not answer all the questions which the human mind, constituted as it is, cannot help putting to itself," or rather which "the universe, through the medium of man, puts to itself". The progress of science and that of philosophy, instead of being opposed, are really complementary; for "the problem of a general conception of the world agitates all modern thought and science, and is indeed one of the characteristic marks of our time".

The formation of such a universal and final conception is the proper task of philosophy. It will not suffice, as Positivism holds, to "place in juxtaposition the most general results of the particular sciences"; it is necessary "to define, explain and justify the cosmical conception which disengages itself from their special investigations". Indeed, the unity and harmony of their results is itself "a metaphysical belief," and can only be established by "a speculative interpretation" of these results. Thus metaphysic is the ideal and inspiring hope of science, furnishing it with the very idea of a "universe," which it endeavours progressively to realise, and also with its "most fruitful method" of "ideal construction" or hypothesis. And, in the execution of its own proper task, metaphysic "only continues the process of science itself, and seeks a construction vaster and more fundamental, in which all the particular constructions of the different sciences may be embraced," and which if not capable of verification, like scientific constructions, by reference to special cases, is yet verifiable by its "adaptation to the entire system of our knowledge".

True and valuable as this statement of the relation of science and philosophy is in the main, it may be questioned whether the author succeeds in vindicating the independent existence of metaphysic. If the whole task of the latter is the summation and correlation of scientific results, why should it not be given over to the sciences themselves? If they are not severally competent to it, why not conjointly? Do not the various sciences, in a sense, revise and correct one another's results, and make the necessary advance from lower to higher conceptions? And might not the final result of this scientific process be the attainment, by science itself, of the universal and metaphysical conception of things? It seems, therefore, that if metaphysic is to establish its *raison d'être* as a permanent and independent

inquiry, it must take its own fresh view of the whole which the special sciences have dissected, and formally, if not materially, investigate its own problem in its own way.

In the second part of the book, M. Fouillée seeks to show that Ethics, like science, is founded on metaphysic or a speculative view of the universe; in particular, that the "physic of ethics" offered us by the evolutionists is based upon a "metaphysic of ethics". Ethics is just a "metaphysic of the good": "ethics, properly so called, is an inquiry concerning the destiny of man, the meaning of the universe, and the value of existence". Such metaphysical questions are inevitably raised by the fundamental conceptions of "positive ethics," pleasure, life, evolution. The theory of evolution itself is a "metaphysic of nature, a cosmology which presupposes principles and hypotheses transcending sensible experience"; and, in its ethical application, we must ask for the proof of Mr. Spencer's "identification of the natural term of evolution with the moral good".

There is, indeed, a positive science or "physic of morals" (comprising psychology and sociology) which "presupposes no opinion about what morality is in itself," *viz.*, "that natural history of the sentiments which has been so admirably treated by the disciples of Helvetius, Bentham, Comte, Mill, Spencer and Darwin". This part of ethics is "scientific and even empirical". But there is another part, which is "hypothetical and metaphysical," *viz.*, "the study of the universal ideal, and of the means employed by the will for its realisation". This metaphysical reference is implied in moral life itself; "the highest action is just a speculation on the Great Unknown, an act of devotion to a metaphysical hypothesis". The attainment of the evolutionary ideal implies such practical speculation; and, since "the conciliation of egoism with altruism must always," as Mr. Stephen admits, be imperfect, "the physic of ethics will never be able to dispense with that metaphysic of ethics which it considers superfluous".

But, if Ethics is founded on Metaphysic, it is also true, in another reference, that Metaphysic is founded on Ethics. Not, however, in the sense maintained by the advocates of the Kantian or "moral method" in philosophy. The question of the significance of morality, prejudged by Kant and his followers, is just "the metaphysical question *par excellence*"; "the moral supremacy is a thing to demonstrate, and not a principle of demonstration". The "moral method" is followed, in a somewhat different sense, by MM. Renouvier and Secrétan and Prof. William James, who hold that science or certain knowledge is founded on voluntary belief. The ultimate metaphysical alternative, according to M. Renouvier, is: "Is there only a natural order, or is there also a moral order, to which the natural order is subordinated?" The answer to this question, he holds, we cannot know, or even infer by scientific probability. We can

only *believe*, or not believe, *freely* in the existence and value of the moral order. The decision is a grand wager, *le pari moral*.

M. Fouillée's criticism of this "moral method" is that the faith which inspires scientific procedure is not "passionate or voluntary"; while metaphysic, "far from basing its conclusions upon beliefs, whether moral or emotional, tends to eliminate entirely all that resembles belief, or any intervention of passion or will in the question of knowing what *is*". "If I perceive that I am the author of the truth which I embrace, I say to myself at once that I embrace a shadow, and I cease to believe in that pretended truth." The so-called 'postulates' or 'articles of faith' are only "data of experience not analysed or not explained, or inductions founded on these data". The whole theory results from "confusing the act of will which decides to realise an ideal, with the act of intelligence which affirms the objective reality of that ideal". It is for metaphysic to "ask of *experience* itself both its motives of doubt and its motives of hope. We believe that the philosophy of evolution, more broadly interpreted than it usually is, will furnish both."

The "broader interpretation" of scientific truth generally, and of the doctrine of evolution in particular, rests upon M. Fouillée's view of *idées-forces*, to which attention has already been directed in MIND, and an estimate of which must be reserved until the appearance of the systematic exposition of it announced by the author.

JAMES SETH.

Les Lois de l'Imitation. Étude Sociologique. Par G. TARDE.
Paris : F. Alcan, 1890. Pp. viii., 432.

The characteristic that first strikes the reader of M. Tarde's book is its geniality and brilliancy in detail. With all this brilliancy it is, at the same time, the clear presentation of a definite main thesis to serve as the foundation of a scientific sociology. Earlier writers, as M. Tarde points out, have often been struck with the social importance of the phenomena of imitation; but no one has hitherto sought to constitute the whole science of sociology by generalising those phenomena. What has hitherto chiefly been attempted is rather to bring the facts of society under some physical or biological formula. A purely social expression of the facts has been thought not to be scientific enough. It is true that sociology is based on physics and biology; for society involves physical and vital as well as purely social facts. The definite constitution of sociology as a separate science requires, however, that there should be some kind of uniformity that is distinctively social, and which cannot be fully expressed in biological or physical terms. This uniformity M. Tarde finds in "imitation". All scientific laws are cases of

"universal repetition". The social form of repetition is imitation, as its physical form—to name the most conspicuous—is vibration, and its vital form generation. Imitation is here a psychological term, being the name for the uniformity displayed by minds in society. "Pure sociology," or sociology as far as it is not based on the generalisations already attained by physicists and biologists, is concerned exclusively with this mental uniformity. Within the individual mind a new idea raises up likenesses of itself, and tends to assimilate the ideas with which it has come into relation. So, when men dwell together in society, an invention or discovery, a new mode of thinking or feeling, arising in one mind is "imitated" in other minds, and, as its last result, gives origin to actions having all a certain resemblance because they have their spring in similar desires and beliefs.

"Imitation" thus gives to social phenomena that element of generality without which no science can exist; but the facts of society are not wholly constituted by this generality. What is imitated is in the end always some idea or feeling that arises in an individual mind. The whole movement of society depends finally on the initiative of individuals. From point to point of the series of inventions and discoveries made in the course of history, certain relations of dependence may be detected. It can often be shown that particular discoveries and inventions must have preceded others. There is consequently a place for speculations as to the order of the individual causes of social progress. Such speculations constitute the "philosophy" of society or of history. By the "science" of society the individual causes in their actual grouping must be taken as original collocations, which it is not its business to go beyond. They have a certain "discontinuous" and, so to speak, accidental character, which must always withdraw them from complete scientific explanation. All the sciences that are concerned with given facts, and not merely sociology, have to assume empirical data of this kind. Individuality, in some sense, is at the root of all real existence.

Every kind of intellectual or moral assimilation of the beliefs or desires of other persons being called "imitation," and every new mode of thinking or feeling an "invention," the aim of social science may be defined as the ascertainment of the laws of the imitative propagation of inventions. Socially, as the author puts it, all is invention and imitation. Resemblances between the members of different societies, when they are not due to imitation are due either to the common pressure of similar circumstances and needs or to heredity. They are therefore rightly called "natural," as not being distinctively human or social.

In the application of his general conception M. Tarde makes considerable advances towards the establishment of definite laws of the social transmission of ideas. His distinction between the "logical" and "extra-logical" factors of social development, for example, of itself clears away a good deal of obstruction from the unprepossessed study of society; and his positive laws of the

action of the two kinds of causes are far-reaching and generalised from large masses of facts. These laws will be the main subject of what follows ; but first M. Tarde's definition of the "social group" must be stated, together with an important deduction from it.

The social group is defined (ch. iii.) as a collection of beings that imitate one another or that have been brought to resemble one another by imitation of the same model. This definition M. Tarde opposes to the definition of a society as consisting in a union of beings for mutual economical aid. In support of it, he puts various cases of actual societies, and asks whether there is the most genuine "society" between those persons who most resemble one another or between those who have most economical need of one another. Evidently the truest society is between those who resemble one another mentally, though they may be rivals, and not between those who, needing one another economically, have no mental resemblance. Such resemblance as is required to constitute a genuine society can only be produced by some form of "imitation"—such as common education or common traditions. Hence a judicial definition of society would be better than an economical definition. For the "mutual determination of engagements or consents, of rights and duties" depends on a certain degree of mental resemblance, and arises only among those who recognise their similarity to one another ; while economical relations are rather an expression of the constraint exercised by external circumstances, than of the genuinely social impulse, and can exist without the resemblance due to imitation. Far from denoting an advanced state of civilisation, the tendency to subordinate the consideration of rights to that of services loses its force in proportion as humanity improves. Society in the sense of "social organisation" certainly involves economical aid ; but in the sense of "sociality" it does not. Sociality, or the purely social element in society, is free individual impulse, propagating itself by spontaneous imitation. As the social comes more and more to dominate the vital and the physical, purely social relations will gain more control over economical relations. Discussing further on (ch. v) the description given of "our contemporary epoch" as one of "science and industry," M. Tarde remarks that to describe it thus is to say that it is occupied with means rather than with ends. Though philosophy has not been wholly neglected, special science has advanced more rapidly than the philosophy of science ; and there is a far greater disproportion between the accumulation of industrial means and their employment for the ends of civilisation. A not very distant age may see the subordination of industry to æsthetic and ethical ideas.

So far as the imitative propagation of inventions and discoveries is due to social as distinguished from physical and vital causes, its causes are in part logical and in part extra-logical. Of the innovations suggested by individual minds, some are taken up and imitated in preference to others because they are found truer

or more useful. Their propagation is thus "logical or teleological". The way in which logical or teleological imitation proceeds is this. At the earliest stage of social development there is coexistence of all inventions in all kinds without any consciousness of mutual incompatibility. Progress takes place by "accumulation". As inventions continue to accumulate, contradictions declare themselves. There is now a series of dialectical struggles, each of which ends in the victory of one of two opposing ideas or in the supersession of both by a third. First the contradiction is perceived by individual minds. When the phase of mental hesitation has passed, and each person has decided for one idea or the other, the struggle becomes a social struggle between two parties or sections. Progress now takes place by "substitution," peaceful or violent, of a conquering for a defeated idea. This in turn does not go on indefinitely. By a process of elimination a system of principles is at length left behind, within which all later inventions take their places in order. Thus there is once more progress by accumulation; but the ideas accumulated, instead of merely not contradicting one another, now support one another. All this, of course, goes on in a series of rhythms, not in three continuous stages extending over the whole of human history. Take, as an example, the growth of a language. At first every new name or grammatical form is a new acquisition, and all can coexist. In time the grammatical forms evolved begin to come into collision. Some are now selected and some thrown out, till at length the grammar of the language has become fixed. Beyond this point, the vocabulary can again increase, and even more rapidly than at first, a place being ready for every new word on condition that it conforms to certain rules; but there is no more advance in fundamentals. So it is not merely with language but with every social institution and with every science and art. The term of all logical conflict is pacification and unity, a common faith in a common ideal.

Imitation under extra-logical influences also takes place according to assignable laws. Its movement is always from within outwards, and from the superior, whether person, locality, or class, to the inferior. Further, in any given society imitation either follows by preference the example of ancestors, or by preference takes up innovations, especially those initiated outside the particular social group. That is to say, it assumes the form either of "custom" or of "fashion". By the law of movement from within outwards is meant that belief determines action, and not action belief. Beliefs and desires, not their external expressions, are the substance and force of what is imitated. Imitation of externals is the result of a desire to resemble internally the models that are followed. In the statement of the second law we are to understand by "superior" the recognised superior. Although there is a certain reaction from the inferior to the superior, imitation always spreads from the social summits.

And when old inequalities disappear new ones appear ; so that there are always points from which imitation can proceed. At the present time, indeed, it proceeds more rapidly than ever. The recognised superiors at any particular time are those who show themselves most able to understand the discoveries and to take advantage of the inventions already made. The third law of extra-logical imitation does not apply, as the two first do, to all the imitations within any society (the logical motives being supposed equal). Custom, or imitation of ancestral examples, always preponderates over "fashion" on the whole ; but there is a certain range for variation, and within this range, according to the society or period, either of the two forms may rule. In all societies imitation takes the form of custom before it takes that of fashion. A social group need not pass from the first stage to the second ; but wherever there is transition the order of succession is invariable. Fashion is uniform and unstable ; custom multiform and stable. During the Middle Ages, for example, when (in everything but some main points, such as religion) custom ruled throughout Europe, the particular usages varied from country to country and from province to province. On the other hand, they were fixed in time. Precisely the same usages might be found at the same spot after the lapse of a century. In an age of fashion, such as the present, the usages, in those departments of life, for example, to which "the great industry" appeals, are the same all over Europe at the same moment. Ten years later they have changed but are equally uniform. Will this instability continue for ever ? M. Tarde's conclusion is that it will not. At the end of the long series of alternations of custom and fashion, there will be a final movement of concentration, and custom will rule universally. The results of the diffusion of innovations by fashion will themselves have assumed the "customary" form ; but with the restored stability of custom there will be combined the acquired uniformity of fashion. Civilisation of the European type, having conquered all the others, will have become absolutely fixed, like those that have preceded it.

"Fashion," as M. Tarde understands it, is simply the extension of the relation between different classes in the same society, beyond the bounds of particular States. At certain epochs, the foreign usage has the kind of *prestige* that belongs to the usage of a superior class. Setting out from Mr. Spencer's antithesis of military and industrial societies, M. Tarde brings this into comparison with Tocqueville's antithesis of aristocratic and democratic societies, and finally proposes to substitute for both that of societies of predominant custom and of predominant fashion. This last antithesis, he finds, can really be made the ground for a connected set of generalisations, as the former two cannot. What is aimed at by Tocqueville and by Mr. Spencer alike is to seize upon the causal element of the social transformation going on in our own period. Two types of society are imagined, one of which has for its determining ground to be industrial or democratic,

the other, to be military or aristocratic. The type of society that Mr. Spencer has in view when he speaks of militarism, Tocqueville has in view when he speaks of aristocracy, and similarly with the antithetical terms. The industrial or democratic type of society, both thinkers hold, is destined in the future to triumph over the opposite type. Neither antithesis, however, really describes the fundamental contrast of older European society, with the society that is tending to be. The causal element of the modern social transformation is that where the past was formerly imitated men now take example from the present. For the fascination of distance in time is substituted the fascination of distance in space. Instead of ancestors, innovating contemporaries are followed. The industrial as opposed to the military organisation of society, M. Tarde does not find to be everywhere, or to be necessarily favourable to individual independence. On the other hand, he accepts Tocqueville's conclusions as to the differences between aristocratic and democratic societies, if for aristocratic we read "ruled by ancestral custom," and for democratic "ruled by contemporary fashion". He finds in Tocqueville's attitude, however, a certain inconsistency. Though favourable on the whole to the "democratic" state of society in which social uniformity is brought about by the gradual diffusion of innovations, Tocqueville, as M. Tarde points out, in the end admits that its tendency is "authoritative," while the "aristocratic" state of society, or the society ruled by custom, is comparatively "liberal"; and yet Tocqueville cared more for liberty than for equality. It is curious that there is in M. Tarde's attitude precisely the same inconsistency. As a general rule he ascribes a liberalising and rationalising influence to "fashion". Yet in the end he finds that the tendency of fashion is to be more tyrannical than custom. This inconsistency of course does not overthrow M. Tarde's historical generalisations, for he does not make the connexion of fashion with freedom any part of these. Its effect is simply to emphasise his own distinction between the logical and extra-logical factors of the social movement. Innovation of a more or less cosmopolitan kind has no doubt for a long time been a liberalising influence in Europe. But, as M. Tarde occasionally recognises, it has not invariably been so, and it is not necessarily so. A Medising Greek, for example, or an Ultramontane, would have to be placed among the partisans of "extra-national fashion". M. Tarde himself gives some illustrations that might be added to these, and that effectively disassociate the "extra-logical" preference to follow fashion or custom from the logical choice of liberty or its opposite.

The true "social question" of the present time, M. Tarde says in one place, is whether European civilisation shall arrive at its definitive type by discussion and criticism or by the unlimited expansion of some new social authority. The solution, he says, cannot yet be foreseen; but his desires appear to be on one side and his expectations on the other. For while he regards it as

certain that, the future order once consummated, belief will again become "intense and intolerant," that a cosmopolitan and authoritative religion (founded on science) will rule over all minds and wills, he expresses the hope that the solution may be long deferred, that our "priceless intellectual anarchy" may remain to us as long as possible. From different chapters a sufficiently clear idea may be gained as to what the future order, in M. Tarde's view, is likely to be. Again and again he returns to the examples of China and the Byzantine Empire as illustrating the inevitable term of all civilisations. Divergent in everything that does not depend on physical and vital causes—for social progress, apart from conquest of one civilisation by another, moves not to a single end, but to many—these two completed social types are alike characterised by the fixation of highly complex customs regulating the whole of life and art. So we may expect it to be with modern European civilisation. A period of temporary mobility, such as was doubtless traversed by all the Asiatic civilisations, such as we know that Græco-Roman civilisation passed through, only prepares for the uniformity of the terminal fixation. Liberty is only a "passage between two disciplines". The idea of "equality before the law," with other juridical ideas of the kind, is destined to become a mere memory in the European consciousness. There are signs that the independent search for truth will be sacrificed to the social need for some consoling illusion. Future society will probably be strongly hierarchical, in spite of (or perhaps because of) the diffusion of the same ideas and needs through its whole mass. By progressive mixture of customs following upon their extra-national dissemination in the shape of fashion, uniformity will, without any political union, be established perhaps over the whole earth. The universal establishment of a single political organisation is also possible, though there are powerful causes that may prevent this. What we may hope for and foresee, is that individuality will show itself ineffaceable in the end, and will emerge from the society of the future with new and finer shades of difference in the form of the æsthetic life.

Others have desired or feared a new Middle Age of this kind. If we allow the chance of its appearance, we must, of course, agree with M. Tarde in the hope that its advent will be deferred as long as possible. Is "intellectual anarchy" our only security against it, or is there some deeper ground of hope that something quite different may arrive? It seems to me that M. Tarde himself supplies us with a reason for expecting a different state of things. Our strongest security against a new epoch of authoritative social compression lies not so much in the persistence of disagreements as in a certain approximation to agreement. Societies, as M. Tarde admirably explains, always after a time of conflict arrive at the fixation of their "grammar". What if the ethical and political "grammar" of modern Europe were to consist precisely of those maxims that are required for the permanent establishment of a state of freedom? It is not necessary that there

should be agreement as to the philosophical grounds of the maxims—as to whether, for example, the basis of the idea of justice is experiential or purely rational. All that is necessary is that the practical principles should be determinate and such as to gain general assent. In intellectual matters is there not already an approximation to this? If we suppose the liberty of criticism and discussion recognised as a principle and victorious in any conflict that it may have to enter upon, then by our very supposition we exclude the type of “customary” civilisation imagined by M. Tarde. Under the perpetual action of unfettered criticism no system of minute and tyrannical custom could maintain itself. Fixity of the ideal, given the disposition to use reason constantly in order to determine action, would of itself exclude fixity of usage; for it cannot be supposed that external circumstances will cease to change, and if they change, then, the ideal remaining the same, human action must vary. The last result conceivable becomes—to make use of a physical metaphor—a moving as distinguished from a stable equilibrium. To say this is even perhaps to concede too much to the idea of a fixed term; for, as M. Tarde has shown, accumulation of discoveries and inventions can go on indefinitely after principles are fixed. This accumulation does not of itself constitute the ideal; but there is an ideal in relation to which it has value; and this ideal is one which, conceived by earlier antiquity, did *not* find its fulfilment in the Byzantine Empire. That M. Tarde's own expectations are not so pessimistic as we might fancy is perhaps to be inferred from a passage where he suggests that “the ideal of the future” is a modification and expansion of “the ancient city”.

THOMAS WHITTAKER.

Das Problem der Materie in der griechischen Philosophie. Eine historisch-kritisch Untersuchung von CLEMENS BÄUMKER. Münster: Aschendorffsche Buchhandlung, 1890. Pp. xv. 436.

It was once, and perhaps still is a widely entertained belief that the history of philosophy moves in a circle, that from the dawn of speculation down to the present day the same nugatory or unintelligible solutions have been offered to the same inexplicable problems. The learned and laborious essay of Herr Bäumker affords a good opportunity for testing the justice of this assumption so far as regards one particular line of inquiry. During its first or physical period, theories about the nature of matter constituted the very substance of Greek philosophy; the great systematising thinkers gave it a large place in their teaching; and down to the last nearly every innovator or reformer had a word to say on the same subject. Their various conclusions are collected and arranged in the present volume with some account of the processes by which they were probably obtained, and brief but suggestive references to the modern

theories of matter and force. If the author has little to tell us that is new on so well-worn a theme, he may be allowed the merit of exhibiting with clearness the assured results of scholarship. While making, of course, a first-hand study of the original texts, he has evidently worked throughout under the guidance of Zeller, occasionally controverting but more often confirming the interpretation of that sagacious critic, and in one important instance—that of Plato's theory of matter—victoriously upholding it against a swarm of assailants.

It is quite certain that the Greeks, or rather two or three of them, at a comparatively early period of speculation enunciated with all desirable clearness two principles of the highest importance—one, that the quantity of matter in the universe always remains constant, the other, that matter is composed of atoms. It is also certain that the Epicurean school, and it alone, had the merit of preserving these two principles and handing them down to modern physicists, who otherwise might have waited long enough before making these discoveries for themselves. It has been objected that the early philosophers only guessed at these principles, that they were only right by accident, which, for scientific purposes, is just as bad as to be wrong. The answer is twofold: ingenious guesses are an indispensable condition of scientific progress; and the atomic theory, even in the hands of its originators, was something more than a guess, it was the very best explanation that could be offered of the phenomena then accessible. That it was derived from eastern sources is a notion which receives no countenance from Herr Bæumker; nor does he attach any importance to the doubts recently thrown on the existence of Leucippus (p. 79)—possibly in the interest of such a derivation. On the other hand, modern research, while it can only add to the glory of the Atomists, somewhat detracts from the extravagant estimate once formed of their predecessors, Heracleitus and Parmenides. The former has sometimes been credited with the whole Hegelian philosophy—thanks partly to the acknowledgments of Hegel himself. Zeller has already done much to dissipate this pretension by setting the *aperçus* of the great Ephesian in their true light as mere physical observations, valuable only as a "moment" in early Greek speculation. Our author goes still further than Zeller, and with great plausibility explains the Heracleitean "identity of opposites" to mean no more than that the same thing or process exhibits different qualities in relation to different objects, as when we say that one man's meat is another man's poison; or again in passing through various stages of evolution, as when life and death spring from one another; or finally when opposite factors contribute towards a single result, such as the production of a new being by the union of the sexes. Parmenides, whom the author places after Heracleitus, has also been claimed as a precursor of Hegel on the strength of a saying supposed to mean that thought and being are the same. But the right interpretation (p. 53) is that

thought is a being—a part of existence. Herr Bæumker sees very clearly how much the Parmenidean account of absolute Being owes to reminiscences of perceptual extension. He might, I think, with advantage have gone still further and admitted that there is no *a priori* reasoning from the abstract notion of existence at all in the Eleatic system, that Parmenides consciously identifies absolute Being with space. Every stroke of his analysis applies to space, except when he declares it to be limited in extent; and as for that, we must remember that Aristotle also denied the infinity of space. If this interpretation be correct, we can see at once how the Being of Parmenides was constructed by fusing together the Limit and the Unlimited which the Pythagorean school had just before set in hostile antithesis to one another (p. 44); while *their* cosmology was evolved by a reverse process of analysis and differentiation from the confused homogeneous Infinite of Anaximander.

It has been held by Zeller and others that the systems of Empedocles, Anaxagoras, and the Atomists, were so many attempts to mediate between Parmenides and Heracleitus, to reconcile the immovable indivisible Being of the one with the perpetual flux of the other. This, according to our author, is a mistake. He holds that the thought of such a synthesis first occurred to Plato; while the course of physical speculation subsequent to the Eleatic school has its philosophical source in Parmenides alone, whose teaching it strives to reconcile with the common opinions of mankind. It seems to me, however, most unlikely that the ideas of a Heracleitus should exercise no influence on thinkers who stood so near to him in time; while his influence, if it told at all, must have told in the direction contended for, and told more effectually than the "common sense" which men like Empedocles and Anaxagoras regarded with such sovereign contempt. Besides we have in the Sphairos of Empedocles a conception not referable to any popular opinion, but directly traceable to the Heracleitean doctrine that all things were periodically swallowed up in fire.

In the course of his exposition Herr Bæumker is careful to point out that nothing like the subjective idealism of the moderns was dreamed of by the early Greek philosophers. Both with them and their successors a directly opposite tendency prevailed, which was to objectify intellectual abstractions, as we see in the Pythagorean construction of matter out of numbers and mathematical figures. Perhaps he hardly does justice to the germs of idealism discoverable in the theory of knowledge held by Protagoras, or, according to his view, by the disciples of Protagoras, as expounded in the *Theætetus* of Plato; in the nihilism of Gorgias; and in the remarkable contention of the Cyrenaics that nothing can be known to us but our own mental affections. As regards the Sophists generally, his standpoint is thoroughly antediluvian: he talks (p. 96) as if they were one and all disbelievers in any objective reality or standard of truth; as if it was they and

not Socrates who broke up the early methods of philosophising; as if (p. 110) the inductive definitions of Socrates were set up in opposition to their destructive scepticism. It seems to be not yet understood in Germany that two out of the only four Sophists about whom we know anything, Hippias and Prodicus, were firm believers in natural science and in a moral law of nature; and that it was just with these two that the historical Socrates came into contact, not with Gorgias and Protagoras, whom Xenophon does not even mention.

The section on Plato's theory of matter seems to me the soundest and most valuable portion of the work. A thorough re-discussion of the whole subject goes, as I have already intimated, to confirm Zeller's opinion that the matter of the *Timæus*, the eternal passive recipient of eternal active ideas is neither more nor less than void infinite space. But why Plato should associate necessary causation with matter understood as mere extension is not made clear. One might have expected that he of all men would have seen in the geometrical and mechanical properties of matter an ideal element communicated to it by the Good, rather than inherent attributes made subservient to the purposes of the Good. Historically, however, the association is of great interest, as it probably suggested—whether directly or indirectly—Spinoza's curious identification of extension with mechanical causation.

By thinking away every attribute of body except the one which is most constant we arrive at the Platonic notion of matter as pure space. By thinking away that one we obtain the Aristotelian notion of matter as pure potentiality. This seems a more natural explanation than the ingenious distinction of Herr Bæumker that Aristotle was governed by the idea of evolution, Plato by that of plastic or imitative art (p. 185). Here at least the disciple merely pushed the master's principles a little further, but with the not uncommon result of swinging them round to the opposite pole. The void extension which Plato took to be the essence of matter could be perfectly well imagined as existing apart from the ideas impressed on or reflected from its surface, and therefore the ideas on their side were left free to exist apart from it: the Aristotelian matter is the unknown and unknowable something in which the sensible qualities of objects inhere, and which, having no separate existence, can only be conceived as existing at all by an effort of abstraction; what it eminently represents is the element of motion and mutability in concrete objects, their capacity for coming into existence and passing out of it again. Now to postulate a material substance as the sufficient reason, the objective correlate of this variableness in the things of experience, though due, as our author rightly observes, to the Platonic habit of realising abstract conceptions as entities apart from the mind, eventually proved more favourable to a directly opposite interpretation of nature. As matter could not be isolated from form, so neither could form—except in the solitary instance of the supreme self-thinking

thought—be isolated from matter. What is more, the two were now explained to be merely different phases of one process related to one another as potential energy and actualised power. Herr Bæumker has, of course, given these points a place in his exposition; but I do not think that he has presented them in the right perspective: he does not show how near Aristotle came to substituting for the dualism of his master a purely monistic system.

There is, perhaps, no topic in Greek philosophy which less admits of being treated with novelty, if it is also to be treated with accuracy, than the physics of Epicurus. Here our author does little more than reproduce the depreciatory estimate of Zeller. Yet he does not entirely avoid the danger of reading modern conceptions into a system which lagged far behind the best science of its own time. The ceaseless motion attributed by Epicurus to his atoms was an illegitimate generalisation from the observed falling of unsupported bodies, not what we find it called here (p. 319), a crude outline of the doctrine of the conservation of force. Had the Epicureans grasped such a conception as the derivation of all movements of masses through space from the vibratory movements of atoms or molecules, they would have anticipated, not modern physics as now constituted, but the goal towards which science is slowly advancing, the reduction of potential to kinetic energy. The modern theory of force as still taught is in truth more nearly akin to the Aristotelian than to the Epicurean physics. The author seems also on a false scent when he discovers the modern antithesis between force and matter in the physics of Stoicism. The Stoics, on his own showing, merely distinguished between active and passive modes of matter, a notion than which nothing can be more alien to the modern mind.

It was, perhaps, in dealing with the notion of matter that the Neo-Platonists displayed most originality. Instead of regarding it, like Plato and Aristotle, as something co-ordinate with spirit, they deduced it either as an ultimate or an immediate emanation from the supreme creative power. Here, if anywhere, one might have expected that subjective idealism would make its appearance. But Greek philosophy maintained its objective character to the last. Sensuous appearances were, indeed, explained as a reflexion of ideas, but it was a reflexion from something that lay altogether outside mind (pp. 403 and 424). The author, following Zeller, draws a sharp distinction between the theories of the origin of matter held respectively by Plotinus and by Proclus. According to the former it is the last product in a series of descending emanations; according to the latter it proceeds from a formless infinitude, which has its place in the first intelligible triad, and emanates directly from the One (p. 424). But I think that a careful examination of the Fourth Book of the Second Ennead, especially Chapters 5 and 15, will show that it contains something more than a hint or germ of the theory developed by Proclus.

ALFRED W. BENN.

VIII—NEW BOOKS.

[These Notes (by various hands) do not exclude Critical Notices later on.]

On Right and Wrong. By WILLIAM SAMUEL LILLY. London: Chapman & Hall, 1890. Pp. xxx., 284.

The high title of this volume covers up a few magazine-articles linked together (more or less) by some other pieces that might well have also had their fair chance of effect in prior magazine-publication. Mr. Lilly's piquant style, magisterial tone, and on the whole not badly sustained pretension to universal information make of him as serviceable a 'philosopher' as monthly-review editor could desire to have at hand for occasional elevation (or submergence) of the 'general reader'. It is when Mr. Lilly proceeds to gather up his spent shafts and labours to persuade others as well as himself that he is doing a serious work for his generation,—it is then that his powers begin to appear less imposing. Though he professes here to write only, in a practical way, for the common man, he takes care to hint what else he has it in him to have done but for the fact that "a class of readers trained in philosophy can hardly be said to exist in England". That puts one upon looking to see what indications Mr. Lilly has not been able to suppress of his own philosophical attainment. As far as appears—beyond some references to S. Thomas and Aristotle, which may mean little enough—it is upon a certain acquaintance with Kant that he stakes his superior credit in this age of philosophical decay. It might even be called reliance upon Kant,—and the fact in itself is not without interest, to see a Catholic champion (even when not professing to be such) break away, to any extent, from his Church's tradition of distrust or hostility in Kant's regard. But why, then, even in writing only for "intelligent and thoughtful men of the world," send a shiver through any moderately-informed Kantian that might be found among them by such loose talk about "intuitive conceptions of the mind" as closes the paragraph on p. 96? Or what are we to think of a philosophical writer who, wanting to separate his "Transcendentalism" from the two-substance theory of mind and matter, can gravely quote, as if it had either novelty or pertinence, some former declaration of his own, that "the old wall of partition between spirit and matter is cracking in all directions" and that "we shall come to recognise a thinking substance of which thought is the foundation, not the resultant"? This last remark must, in the connexion (p. 68), be supposed to be meant as pointed against the thinking substance of Cartesian dualism! But, perhaps, nothing very particular was meant, to judge by the series of skips from one thing to anything else which Mr. Lilly goes on to perform in the next sentences. By way of information, we have the industrious Dr. Büchner put forward as an intellectual portent of the time, on the strength of an opinion expressed about him by M. Paul Janet which one remembers reading in the *Rev. des deux Mondes* a good twenty-five years ago. Then, after some other curious observations, all his own, upon the present state of the German mind, Mr. Lilly gives us this upon France:—"At the present moment the most widely influential school is unquestionably the medico-atheistic: the school which inculcates sensism of the grossest kind, which reeks of the brothel and the torture-

trough" (p. 19). It is vehemently said; and one is interested to know, exactly, of whom. Two sentences later, Mr. Lilly, having already forgotten all about his former "unquestionably," is not less confident with this other—"Unquestionably, the two greatest intellectual forces in France at the present time are M. Renan and M. Taine". It seems a considerable liberty to take with any class of readers; and till Mr. Lilly can learn to splash about a little less wildly altogether, it is impossible to take him seriously. Not but that his authorities, when at times he gives his mind to them, furnish him with considerations which the English writers (of various degrees of philosophical importance) against whom he tilts would have done well to pass over less lightly. But it needs a more coherent and sober reasoner than Mr. Lilly either to make the considerations now tell upon the writers who have not sufficiently regarded them or to give them force with readers who may else be led astray. On the whole, he may be advised not again to make his occupation with philosophical questions a reason for not giving to his friend, the editor of *The English Historical Review*, the benefit of his more serious studies (*vide* expansive Dedication of the volume).

Locke. By ALEXANDER CAMPBELL FRASER. Professor of Logic and Metaphysics, University of Edinburgh. ("Philosophical Classics for English Readers.") Edinburgh and London: W. Blackwood & Sons, 1890. Pp. x., 299.

The series of "Philosophical Classics" resumes with this volume the old and better scheme of treatment departed from, without any sufficient reason, in the different ways of the *Spinoza* and the *Bacon*. Prof. Fraser, having long intended and prepared to do for Locke's chief work what he so effectively accomplished for the works of Berkeley, now resigns the project and offers the present volume as a help towards the more extensive task of making fitting collection of the whole of Locke's works which he commends to some other philosophic scholar. The volume appears the more impressively in 1890, just two hundred years after the first publication of the famous and undying *Essay*, and it does, in the main, excellently fulfil its author's purpose. With free reference to the large mass of unpublished *Lockeana*, Prof. Fraser gives a more vivid picture than has yet been presented of the sagacious man's varied activity through life; and the account of the philosophy of the *Essay*, in something more than one hundred pages (pp. 104-212), is the most comprehensive and best-considered to which either student or common reader can now turn. Perhaps, on another occasion, some remark may be offered on various points in Prof. Fraser's interpretation, as also on certain special aspects of Locke's work which, with all his comprehensiveness, Prof. Fraser has hardly brought into the prominence they deserve. His newer materials might have been usefully and interestingly added to from the bodies of correspondence, bearing on Leibniz's effort to get into close relation with Locke, which have now been made public by Gerhardt in vol. vi. of his collected edition of the German philosopher's writings (see *MIND* xiii., 312); though nothing could be more significant of the older man's fore-closed state of mind than the slighting remark which Prof. Fraser does quote (p. 248) from a letter to Molyneux. [Some slips need correcting here and there. Hobbes's *Human Nature*, though it may be referred to either 1640 or 1650, can in no case be dated "1642"; nor is it rightly suggested thereupon (p. 12) that Gassendi's works on Epicurus followed the *Leviathan* of 1651. And surely it was not "at" (p. 18), but rather from, Oxford that the Royal Society got incorporation in 1661.]

Pure Logic and other Minor Works. By W. STANLEY JEVONS. Edited by ROBERT ADAMSON, Professor of Logic at Owens College, Manchester, and HARRIET A. JEVONS. With a Preface by Professor ADAMSON. London: Macmillan & Co., 1890. Pp. xiii., 299.

A welcome collection of Jevons's earlier logical writings (1864-70), with a reprint of the series of papers which he had begun to issue before his untimely death under the general title of "John Stuart Mill's Philosophy tested". To these last (four in number) is added one small fragment "On the Method of Difference". Something was said here at the time (MIND iii. 141, 287) on the polemical enterprise to which Jevons had committed himself with such ardour in his last years. Prof. Adamson, in his present preface, deals very acutely with the deep-lying difference that parted Jevons and Mill, under a superficial appearance of agreement as experientialists. His observations give occasion for return to the subject in a future No.

The Seat of Authority in Religion. By JAMES MARTINEAU. London: Longmans, Green & Co., 1890. Pp. xi., 664.

This work, now completing an earlier enterprise (1872-5) of serial publication designed "to present a compendious survey of the ground both of Natural and Historical religion as accepted in Christendom," lies outside the philosophical construction reared in *Types of Ethical Theory* and *A Study of Religion*, but yet gives the author in bk. i., "Authority implied in Religion," an opportunity of developing again, with persuasive eloquence, some of his most characteristic philosophical views. The other books are occupied with "Authority artificially misplaced" (in Catholic Church or Protestant Guide in Scripture), "Divine Authority mixed with Human things," "Severance of Undivine Elements from Christendom," and "The Divine in the Human".

The Anatomy of the Central Nervous System in Health and in Disease. By Dr. HEINRICH OBERSTEINER, Prof. (ext) at the University of Vienna. Translated with annotations and additions by ALEXANDER HILL, M.D., &c., Master of Downing College, Cambridge. With 195 Illustrations. London: Charles Griffin & Co., 1890. Pp. xix., 432.

This work is specially commended to all students of mental science who wish to refer to the fullest and most accurate exposition now attainable of the results of anatomical inquiry into the central nervous system. The illustrative figures are of particular excellence; those of cross-sections being given in a way—one half filled-in, the other half in outline—which is admirably instructive. And here the translation is done by one who is himself a master of anatomy, able not only to follow his author but also to supplement him with results of independent research. Dr. Hill's additions, while duly marked off as his own, add materially to the value of the original: they are governed by that new and striking conception of his as to the plan of the nervous system noted in MIND x. 612. A Glossarial Index, giving the current English (or Latin) equivalents for German anatomical terms, with the French equivalents also in many cases, will be found of special use for purposes of reference.

A Textbook of Mental Diseases, with special reference to the Pathological Aspects of Insanity. By W. BEVAN LEWIS, Medical Director, West Riding Asylum, &c. With Illustrations in the text, Charts and 18 Lithographed Plates. London: C. Griffin & Co., 1889. Pp. xxii., 552.

The characteristic feature of this work is, without neglect of the

clinical aspects of insanity, to give much more prominence than has been usual to questions of anatomical basis and also to exhibit the course of pathological change (as far as it can be traced) in the implicated parts of the cerebro-spinal system. Pt. i. (pp. 1—114), "Anatomical and Histological" gives, accordingly, an elaborate and comprehensive view of the whole central system; while pt. iii. (pp. 482—541), "Pathological," breaks much new ground in regard to the nature and development of the morbid processes that show themselves in the multiform kinds of mental alienation, described at length in pt. ii. The work, all through, is the outcome of original observation and research—not a reproduction of other men's results.

The Criminal. By HAVELOCK ELLIS. Illustrated. ("The Contemporary Science Series.") London: Walter Scott, 1890. Pp. viii., 387.

An account of the results obtained by the new school of "criminal anthropology," founded in Italy. The chapters of the book are: i. "Introduction"; ii., "The Study of the Criminal"; iii., "Criminal Anthropology (Physical)"; iv., "Criminal Anthropology (Psychical)"; v., "The Results of Criminal Anthropology"; vi., "The Treatment of the Criminal"; vii., "Conclusions". There are several appendices, one of which (pp. 307—316) is a report of the Congress of Criminal Anthropology at Paris (1889). English readers may now get from this single volume information that has had to be sought in many foreign books and periodicals. The lines of investigation of the Italian school and the facts classified by Continental investigators are well and clearly set forth. Where the book is of less service is in its account of the general drift of the ideas of the school. If the author's own views were taken as representative it would even be somewhat misleading. The more influential thinkers of the new school would certainly not agree with him that there is henceforth to be no theory of "punishment" in the proper sense. "We cannot punish a monstrosity," the author says (p. 238), "for acting according to its monstrous nature". That is precisely what the leading writers of the school have set themselves to show that we can and ought to do. (See, upon Lombroso, Garofalo and others, *MIND* xiii. 450; and cp. p. 424 below.)

A Course of Lectures on the Growth and Means of Training the Mental Faculty. Delivered in the University of Cambridge. By FRANCIS WARNER, M.D., Lond., F.R.C.P., F.R.C.S., Eng., Physician to the London Hospital, &c. Cambridge: At the University Press, 1890. Pp. ix., 222.

The Teachers who have listened to the "Course of Lectures" here published are hardly to be congratulated. The one distinctive, if not particularly valuable, idea of the book is that of making the study of plant-life immediately preliminary to the study of expressions of mind in children. In the author's work on *Physical Expression* contributed to the International Scientific Series (see *MIND* x. 465), this mode of study was already advocated. The results attained were not very noteworthy, but at any rate the book only professed to deal with *physical* expression. The author now leads us to expect that he will deal with *mental* faculty, and then proceeds to deny the application of the term "mental" to anything beyond the physical states of organisms. "The term Psychosis," he says, "is here used to express the physical processes occurring in the brain which are connected with the action of mind. . . . The study of mental action thus becomes a study of physical facts, as is the study of any other subject in physiology, or

the study of the phenomena of light, electricity or sound" (p. 87). At p. 89 he speaks of "the physical action called 'thought'". Perhaps a sentence from p. 40 may make Dr. Warner's own "thought" more intelligible. "The expression of a thought consists in the motor action of a group of cells, the thought (act of psychosis) consists in the formation of the union of cells whose motor or efferent action produces expression of the thought." What, again, is meant when, in a paragraph on "Logic" at p. 15, it is said that "the sequence of a phenomenon can never be a part of its causation"? And is this made clearer by the sentence that follows? "It is doubtless true that logic should guide our observations and arguments, but, in some cases, observation, especially as to the time of events, may help to correct our logic." Coming to Dr. Warner's study of children we meet with oracular sayings such as these:—"The outcome of impressions produced after birth is called intelligence" (p. 50). "The most important condition of a child's brain is that indicated by the signs of *consciousness*" (p. 72). "The condition of activity is indicated by actions, *i.e.*, movements" (p. 79). "In truth you must avoid metaphysical descriptions in scientific work" (p. 88). Is the statement that "activity is indicated by actions" science, or a caricature of "metaphysics"?

The Faith of a Realist. By JAMES COPNER, M.A., &c. London and Edinburgh: Williams & Norgate, 1890. Pp. 851.

The aim of this book is to work towards an ideal of a "philosophical religion"—that is, of "a religion which shall commend itself as rational to men of science and philosophy, and shall be capable also of being accepted as true by the generality of men". It is everywhere liberal and philosophical in spirit. The title is taken from chapter i. ("Philosophical Realism"), in which the author contends for a distinction between "phenomena," regarded as non-causal in the philosophical sense, and "noumena," which are causal and the objects of philosophy. Chapter ii. ("The Relation of Philosophy to Science") sets forth a view of science as the basis of philosophy but not its substance. The remaining chapters ("God and Providence," "Good in Things Evil," "The Reign of Law," "The Divine Attributes," "*De Animâ*," "Philosophical Religion") all contain noteworthy points. The author's doctrine of Providence, for example, has independent philosophical interest. In the course of his exposition of it he defends determinism as leaving "moral freedom and moral responsibility entirely intact". "Creation," philosophically viewed, he regards as consisting in a "providential evolution"—or, in other words, "a God-directed origination of things from things previously existing". The distinction between "personal continuity" and "personal identity" is discussed in a suggestive way; the conclusion drawn being that "man has not personal identity, but personal continuity". The soul, like the organism, has been evolved. It is not, however, a resultant of the organism, but is rather to be regarded as an internal and active "cause of organism". Thus viewed, it furnishes the basis for a theory of personal immortality as consisting not in any absolute sameness, psychical any more than physical, but in a development without loss of spiritual continuity.

Proceedings of the Aristotelian Society for the Systematic Study of Philosophy. Vol. I., No. 8, Part i. London: Williams and Norgate, 1890. Pp. 76.

This instalment of the Proceedings of the Aristotelian Society contains the Presidential Address for the Session 1889-90 ("What is Logic?"), a paper by Mr. Bosanquet on "The Æsthetic Theory of

"Ugliness" (the result of which is that "true" as distinguished from "apparent" ugliness is "the positive contrary of the characteristic, i.e., the partial taken as the characteristic") and a 'symposium' on the question "Is there Evidence of Design in Nature?" to which the contributors are the Rev. W. L. Gildea, Mr. S. Alexander, and Mr. Romanes. In his Presidential Address Mr. Hodgson contends for the limitation of the scope of Logic to the setting forth of the laws or forms of thought. "Logic," as he puts it, "is Thought engaged, not in following the Proteus-changes of Nature, but in watching its own steps in following them"; or, as he says in another place, "Logic contains the laws or forms of thought or reasoning in application to phenomena, the laws or forms in or under which we think, as distinguished from perceiving". It is thus not a "Method of Reasoning," such as are Induction and Deduction, but is "analytic simply". Theories of Logic that include more than laws or forms of thought are "empirical"; the two chief forms of "empiricism" at present being "the English and the Hegelian," of which the first errs by bringing within Logic the actual inductive process of the discovery of scientific truth, while the second errs by assigning creative activity to thought within the sphere of perception. The *crux* of Logic is the existence of reasoning which is at the same time "reasoning" and erroneous. Its solution is in the word "*tentative*". Reasoning consists of (1) an "act of attention," which marks the transition from perception to thought and gives the three logical "postulates" of Identity, Contradiction and Excluded Middle, and (2) a non-volitional content. The "spontaneous reintegration" of the content of consciousness supplies data to the choice that takes place in "tentative" reasoning. "Whenever the reasoning as a whole is erroneous, the error arises from the spontaneously supplied data, and not from the volitional action, which, as far as it is simply an application of the Postulates, is infallible. At the same time it is this latter part of the whole action in which its *differentia* as reasoning consists, and which gives the character of a reasoning to the whole."

The Wisdom of Life, being the First Part of Arthur Schopenhauer's *Aphorismen zur Lebensweisheit*. Translated with a Preface by T. BAILEY SAUNDERS, M.A. London: Swan Sonnenschein & Co., 1890. Pp. xxvi., 135.

Mr. Saunders here continues his translation of selections from Schopenhauer's minor works, which, as in the former volume (see MIND xiv. 596), is competent and agreeable to read. In his introduction he explains the scope of Schopenhauer's "Wisdom of Life" as a protest against the search for happiness in externals.

Insignia Vita, or Broad Principles and Practical Conclusions. Five Essays on Life and Character. By C. H. WATERHOUSE, B.A., M.D. London: J. S. Virtue & Co., 1890. Pp. xi., 295.

The subjects of these five essays are (1) Nature's Plan in the Life of Man, (2) Concerning the Real Self or "Ego" in Man, (3) On the Exercise of the Judgment, (4) Concerning the Genesis of Man, (5) On the Relation of the Sexes. The first two are the most distinctly philosophical, and it is in the second especially that the author's central thought is to be found. He has conceived very clearly and often very well expressed the idea of human nature as divided between a higher principle which forms man's "true self or Ego" and a "lower executive" that ought to be subservient to it but may escape from its control, and, in this case, may either submit to the direction of another will or itself get control over the true

Ego. In illustration of this conception good use is made of recent observations on hypnotised 'subjects,' on the phenomena of disaggregated personality, &c. The distinction is dwelt upon between "moral" or imperative and "natural" or scientific law; the latter being treated (not without an effort at reconciliation in the first essay) now as the obstacle and now as the condition of the former. A psychological point that is brought out in an interesting way (*e.g.*, p. 114) is the difference between "concentration" and "expansion" of mind—the first illustrated by the attitude of the mathematician, the second by the attitude of the poet—in both of which "the mind is deeply and powerfully engaged" but in two wholly different manners. The author's general conception of "the real self or Ego" is summed up in a sentence where he observes that "the subject of our scrutiny" is "not by any means conterminous with the totality of man's composite being; that many other items in life's count pose more conspicuously, strike the eye far more forcibly than the impalpable, viewless, intermittent and wavering force of the real self or Ego; yet not in those more showy and, to all appearance, more substantial belongings and trappings of personality shall a man, if he take himself to task, recognise the true law and *logos* of his being, but in the exercise—titful though it be—of his conscience-guided will".

The World-Energy and its Self-Conservation. By WILLIAM M. BRYANT. Chicago: S. C. Griggs, & Co., 1890. Pp. xv., 804.

An effort to exhibit Hegelianism and modern physical science as opposite aspects of the same general truth. "The famous Hegelian dialectic is in truth nothing less or else than the speculative aspect of the doctrine of the Conservation of Energy, which constitutes the vital element of all that is known as 'Modern Science'. The former presents the principle of Evolution in its most abstract, but also in its most rigidly consistent form. The latter unfolds the 'dialectic' under the form of the necessary relations or laws that 'govern,' or rather constitute, natural (in the sense of physical) phenomena. Thus, instead of being contradictory the one of the other, these two great movements are in reality but complementary and increasingly adequate phases of the ceaseless struggle on the part of the human mind to bring itself into harmony with the actual world in its essential, and therefore ultimate, significance."

The Way out of Agnosticism, or the Philosophy of Free Religion. By FRANCIS ELLINGWOOD ABBOT, Ph.D., late Instructor in Philosophy in Harvard University. Boston: Little, Brown & Co., 1890. Pp. xi., 75.

Dr. Abbot propounds a theory of the universe which he defines as "Absolute Monism or Scientific Theism" and regards as the "necessary philosophical goal of the great movement of modern scientific thought". The general principles of his doctrine (for which see MIND vii. 461, also xi. 287, 409) are now expressed thus:—(1) "The universal results of the special sciences, including the method common to them all, are the only possible data of philosophy or universal science"; (2) "The universe is known as at once infinite machine, infinite organism and infinite person—as mechanical in its apparent form and action, organic in its essential constitution and personal in its innermost being: it is the eternally self-evolving and self-involving unity of the Absolute Real and the Absolute Ideal in God"; (3) "The universe itself, as eternally self-evolving and self-involving unity of the Absolute Real and the Absolute Ideal in God, is the ethical Realisation of the Infinite Divine Ideal, which reflects itself in the Finite Human Ideal as the sun reflects itself in the dew-drop;

and the splendour of its reflexion is proportioned to the intelligent, free, loyal and loving obedience of the human soul to it, as at once the supreme law of Human Nature and the supreme known law of Universal Nature”.

Le Surmenage mental dans la Civilisation moderne. Effets—Causes—Remèdes. Par MARIE MANACÉINE, Membre Honoraire de la Société médicale de la Sibérie orientale, Membre Effectif du Comité d’Instruction et d’Education du Musée pédagogique de Saint Pétersbourg, etc., etc. Traduit du russe par E. JAUBERT. Avec une Préface par CHARLES RICHER, Professeur à la Faculté de Médecine de Paris. Paris: G. Masson, 1890. Pp. xiv., 286.

This book, by a Russian educationist, was well worth translating. Madame Manacéine’s aim is first to describe and then to trace to its causes and suggest remedies for that increase of various forms of weakness and instability of the nervous system which is observed to accompany advancing civilisation. Among the causes are found increase of town life, the “over-pressure” and (still more) the monotony of the modern school, and generally all that contributes to what has been called “surmenage mental”. To show the way in which this produces its effect, the author first dwells on the normal outcome of social and civilised life. The highest result of mental development, she contends, is “individualisation,” the formation of a definite personal character. This is the result to be aimed at both by educators and by each person for himself. It can only be attained by a subordination of impulses to the “unity of the interior Ego”. Physiologically it is expressed in subordination of the lower to the higher nervous centres. Every cause of “degenerescence and dissolution” begins by an attack on the higher co-ordinating nervous centres; and so it is with “surmenage mental”. The physiological effect of this is accordingly “asthenia of the frontal lobes”—to the getting rid of which all efforts ought to be directed. Apart from remarks as to the care of physical health, the result is that educators, in particular, ought to avoid at once intellectual monotony and distraction, and ought to encourage activity of mind in their pupils as distinguished from mere receptivity, since activity promotes the co-ordination to be aimed at. A noteworthy application of the general idea is made in a passage extending over pp. 67-9. “The tendency of our epoch to consider all ‘psychopaths’ as irresponsible subjects ends in reality by depriving them of those vigorous springs which might aid them in their struggle against the morbid impulses of their unstable and pathological nervous system. In depriving them of those springs we contribute to their future degenerescence. Is that mode of action humane? Every criminal, every ‘psychopath’ preserves a certain particle of humanity, and the duty of the legislator as of the whole of society is to sustain and develop in him precisely that side of his nature . . . Severe penal measures, in such cases, will be more humanitarian, will do much less injury, than the sentimental doctrines of irresponsibility.”

Rapports du Relatif et de l’Absolu. Par FÉLIX CELLARIER. Paris: F. Alcan, 1890. Pp. vi., 419.

This is a sequel to the author’s *Etudes sur la Raison* (MIND xiv. 294) and is to be followed by another work. The main theoretical points now developed were already put in the earlier book. The keystone of his system, the author says, is “the unity of essence of all being”. “Existence is different and distinct in all beings; essence, on the contrary,

is one and identical in all without exception." Knowledge of relative, contingent, finite beings implies that of absolute, necessary, infinite being.

Le Problème religieux au XIX^e Siècle. Par J. E. ALAUX, Professeur de Faculté, Professeur de philosophie à l'Ecole des Lettres d'Alger. Précédé d'une Préface par JEAN PAUL CLARENS. Paris: F. Alcan, 1890. Pp. xii, 444.

This is in part a recast of two earlier works—*La Religion au XIX^e Siècle* (1857) and *La Raison, Essai sur l'avenir de la Philosophie* (1860)—or rather of the first and one division of the second, the other division of which has become *L'Analyse métaphysique, Méthode pour constituer la Philosophie première* (1872); in part it consists of chapters not before published. The author holds Christianity in its Catholic form to be true as a doctrinal system, though not perhaps wholly true according to the ordinary conception of it as making infallible historical assertions. The Catholic doctrine, however, is in need of "philosophical reconstruction" as distinguished from bare "theological explanation". The problem attempted by the Alexandrian Fathers, and formulated by Anselm in the words taken as a motto for the present work—*Fides querens intellectum*—must be attempted again in our own age. Nothing less than the transformation of faith into science by philosophy can solve the religious problem of the century. As a preliminary to this philosophical reconstruction, the individual reason must accept a "faith" on authority, but on no less an authority than that of "the human race," which holds as in deposit a knowledge of invisible things for the use of each of us. At the basis of all religions is found "religion"; and this for the author is identical with the essence of the Catholic creed. The genuinely "Catholic" religion of the whole of humanity can only have been communicated by an external revelation. It is a "faith" that "reason," or the individual intelligence, cannot reject without cutting itself off from the general or social intelligence. "Reason is the individual instrument, faith the social instrument of knowledge." Understanding is our work; faith is the work of God in us. "Religion, as doctrine, is no other than philosophy revealed to the human race before being understood by the individual; philosophy is no other than religion understood by the individual, who holds it from the human race, which holds it from God." By the search for a metaphysical hypothesis to be made the ground of the Catholic position as to individual destiny, the author arrives at his distinctive (monadological) view—partly developed in a little book noticed in MIND xiii. 615. The point of it in its application to Christian theology is a theory of the reincarnation of the souls of the reprobate.

L'Anthropologie criminelle et ses récents progrès. Par CESARE LOMBROSO, w. Professeur de psychiatrie et de médecine légale à l'Université de (1) Turin. Avec 10 figures dans le texte. Paris: F. Alcan, 1890. the Pp. 180.

philosophic little book Prof. Lombroso states briefly some of the positions at once rger work *L'Homme criminel* (see MIND xiii. 450), defends them mechan objections, and discusses the progress of "criminal anthrostitutor" within recent years. First of all he makes a perfectly valid evolvine of his method of ascertaining the features of the criminal Ideal e". The scientific constitution of anthropological types generally, self-ie shows, does not involve the presence of the "typical" features in is the r even in a majority, of persons of the class from which the type is self in thted; and the criminal type is no exception to the rule. A rather

conspicuous weakness of the book, however, is the author's attempt to combine his own thesis as to the existence of a criminal type or types of *character* with the view that regards the extremer forms of criminality as resulting from mental disease. The genuinely new idea of Prof. Lombroso's school, as some of those who have been most influenced by his teaching have pointed out, is really incompatible with the position of the earlier medical theorists who used to speak of "moral insanity". Through the whole of the present book, except the first two chapters (on the anatomical and physiological anomalies of criminals), the mixture of incompatible doctrines may be detected. In view of the divergent practical consequences of the two theses, it is important to insist on this theoretical defect, which, it may be remarked, comes out more strongly in a book that is occupied with general principles than in one that is occupied with the detail of the subject.

Les Rêves. Physiologie et Pathologie. Par Le Dr. PH. TISSRÉ, Bibliothécaire universitaire à la Faculté de médecine de Bordeaux. Avec une Préface de M. le Professeur AZAM. Paris : F. Alcan, 1890. Pp. xii, 214.

This book contains an extensive collection of facts relating to the phenomena of dreaming ; many of which are the result of original observations by the author, especially on one particular 'subject' who at frequent intervals falls into a state of "diurnal somnambulism". The facts as regards this 'subject' are given at most length in part ii. ("Influence of dreams on ideation and on the acts accomplished in the sleeping and waking states," pp. 113-175.) Part iii. (pp. 177-205) is a "Résumé"; part i. (pp. 5-111) attempts a general classification and theory of the phenomena. As a theoretical basis for his classification of dreams the author distinguishes between the "sensorial" and the "splanchnic" Ego. The first corresponds to the functions of the epidermic organs of sense and their nervous centres, the second to the functions of the internal organs (heart, lungs, &c.) and the nervous centres more directly influenced by them. The splanchnic Ego is always active, in sleep as in waking life ; the sensorial Ego is "episodic," and in sleep is thrown out of equilibrium. "All combinations are possible between the substratum memories of the splanchnic Ego and the episodic memories of the sensorial Ego." The splanchnic Ego in sleep perceives modifications of organs and systems better than in the waking state, and sometimes reveals them in dreams. Sleep may be "physiological," "somnambulant" or "hypnotic". Associations of ideas, and relations of "suggestion" to act, the author finds, can be established in so many ways among the dreams belonging to these modes of sleep, and between dreams generally and the conscious states of waking life, that we are obliged to regard the difference between one kind of sleep and any other as only a difference of degree. The three modes of sleep in reality form a continuous series, in the order—physiological, somnambulant, hypnotic.

Gall et sa Doctrine. Justification des Principes fondamentaux de l'Organologie Cérébrale ; suivie d'une Etude sur Amnésie, l'Aphémie et l'Aphasie et d'autres Propositions relatives au Dédoublément fonctionnel du Cerveau et à l'Autopsychologie. Par Le Dr. F. NIVELET, Vice-président du conseil d'hygiène de l'arrondissement de Commercy, etc. Paris : F. Alcan, 1890. Pp. 278.

This book is, in its first part (pp. 6-128), an account of the general doctrine of Gall as to cerebral localisation. The second part (pp. 181-78) deals with the localisation of the power of articulate speech, with special

reference to Gall's doctrine. Part iii. (pp. 181-222), entitled "Autopsychology," describes some peculiarities of the writer's own memory—which is strong on the auditory and weak on the visual side. Part iv. (pp. 225-76) is a "Study on the duplication of voluntary motricity in correlation with the duplication of the cerebral hemispheres". The parts that deal with Gall are copiously illustrated by extracts from his work, and will be found specially interesting. Only the general doctrine, not the detailed distribution of 'faculties,' is gone into. The author's contention is that, since his own day, Gall has been unduly neglected by the scientific world. His particular mapping out of the organs of mind cannot, indeed, be upheld; but he was an initiator in the study of the brain in relation to psychology, and by his general teaching he helped to clear away many errors and prejudices.

La Théorie de la Grâce et la Liberté morale de l'Homme. Par E. JOYAU, Chargé de Cours à la Faculté des Lettres d'Aix, Ancien Elève de l'Ecole Normale. Paris : F. Alcan, 1889. Pp. 129.

An interesting and scholarly history of the principal phases of the Free-will controversy in its relation to the theological doctrine of Grace. The conflict between the doctrines of Grace and of Free-will the author regards as a conflict between what may be called "the Christian and the theological spirit". Christianity—with Judaism—supposes man free to obey or not to obey divine commands, and therefore responsible for his decision. On the other hand "the theological tradition," beginning with St. Paul, tends to the negation of human freedom. The theologians attempt to formulate consistently the mode of action of divine Grace, regarded as necessarily efficacious, and this leads inevitably to the denial of all initiative to man. Yet so energetic is the feeling that man has of his independence that the Catholic Church, which logically ought to have denied free-will, has made it a fundamental dogma; and theologians have exhausted their ingenuity in the effort to reconcile it with the doctrine of omnipotent grace. Among doctrines of liberty considered in themselves M. Joyau regards that of Malebranche (to whom he devotes his concluding section) as "one of the most exact and complete that the history of philosophy presents us with," but as quite irreconcilable with Malebranche's metaphysical doctrine, since that ascribes all real causation to divine action. Thus in seventeen centuries no advance was made towards a solution of the fundamental problem of Christian theology. This might have been foreseen. The doctrine of omnipotent divine grace can indeed—so long as it is regarded as a mystery—be held side by side with the belief in human free-will; but no philosophical reconciliation between them is possible.

L'Esthétique d'Aristote et de ses Successeurs. Par CH. BÉNARD, Ancien Professeur de philosophie dans les lycées de Paris et à l'Ecole normale supérieure. Paris : A. Picard ; F. Alcan, 1889. Pp. 387.

M. Bénard, well known by former works on ancient as well as modern philosophy, has here written the history of *Æsthetics* in antiquity from Aristotle onwards. Part i. of his present work (pp. 1-157) treats of the *æsthetics* of Aristotle himself, under the heads of "The Beautiful," "Art," "Poetry," "Music : Dancing and theatrical action," "The Arts of design (Painting, Sculpture, Architecture)". Part ii. (pp. 159-369) traces the history of *æsthetics* after Aristotle, dealing in order with the Peripatetics, the Epicureans, the Stoics, the Sceptics, the Eclectics, the Rhetoricians (grammarians, historians of art, poets and artists), and the Alexandrians. A paper on "The *Æsthetics* of Aristotle and Contem-

porary Criticism," being a bibliographical and critical notice of writers who have treated of Aristotle's *Æsthetics* during the present century, is printed in smaller type, at the end of the volume. M. Bénard's general conclusion is that Aristotle marks the culminating point of ancient *æsthetics*. Although in the philosophical theory of beauty Aristotle did not go beyond Plato, he had the idea of a *science* of *Æsthetics*, founded on consideration of what had been actually achieved in the arts; and this kind of consideration Plato had wholly subordinated to metaphysical doctrine. Aristotle, however, did not constitute *æsthetic science*, nor was it constituted in antiquity. Perhaps, indeed, *Æsthetics* as a separate science is only now beginning to exist. The error of modern commentators, especially of the Germans, has been to read their own theories into Aristotle, ascribing to him views that he could not possibly have attained. It has therefore been the author's aim to set forth the doctrine of Aristotle as it actually was, with all its fragmentariness and with its occasional inconsistencies. Thus considered, he finds that, although it cannot on any legitimate system of interpretation be regarded as adequate to the whole of art, ancient and modern, it is yet of more than historical interest, and contains elements that are really of absolute value; some of its canons being not merely special rules applicable to art under ancient conditions, but, when rightly understood, canons applicable to all art.

L'Evolutionnisme des Idées-Forces. Par ALFRED FOUILLÉE. Paris: F. Alcan, 1890. Pp. xciv., 808.

"In this work the author sets forth the general principles of his philosophical doctrine. While accepting the theory of evolution in its general scope, he believes that it will have to be profoundly modified, and that factors of mental order must be added to the mechanical factors. He criticises the doctrines which regard facts of consciousness and ideas as mere passive *reflexions* of mechanism, and animals as '*conscious automata*'. The action of psychical phenomena, which, on their representative side, all involve ideas, their influence on evolution, their kind of efficiency and *force*—are what he has desired to bring to light under the general name of *idea-forces*. He shows the capital importance of this point of view in psychology, in cosmology, and in morality. To complete mechanical evolutionism by an evolutionism with a psychical spring is to render progress possible in the world, in place of a perpetual repetition, and thus to re-open the door to hope." Critical Notice will follow.

La Genèse de l'Idée de Temps. Par M. GUYAU. Avec une Introduction par ALFRED FOUILLÉE. Paris: F. Alcan, 1890. Pp. xxxvi., 142.

"This book is a contribution to the theory of evolution, which explains all our ideas by the slowly accumulated effects of individual and ancestral experience. But, at the same time, Guyau's study is an important modification of the evolutionist theory. In opposition to the opinions generally received in the evolutionist school, Guyau does not make the perception of extension depend on that of duration; he admits, if not the priority of the perception of extension, at least the primitive simultaneity of the two representations. After having studied what he calls the passive and statical form of the idea of time, he points out its active and dynamical foundation; he studies the part of will and of motor activity in the notion of time, the relations of time and memory, finally the illusions of time. The work is preceded by an extensive introduction in which M. Fouillée criticises the Kantian theory of time."

La Filosofia dell' Inconsciente metafisica e morale. Contributo alla Storia del Pessimismo. Per ADOLFO FAGGI. Firenze: Successori Le Monnier, 1890. Pp. 207.

A copious and appreciative exposition of Hartmann's metaphysical and moral philosophy—though not the exposition of a disciple. The author arrives at the view that the system of "evolutionary pessimism" is itself a necessary stage in the evolution of pessimistic thought, and that it is the last stage; being, indeed, a euthanasia, definitively closing "the grandiose epic of pain which has had so much part in the intellectual evolution of the Europe of the nineteenth century". A pessimistic doctrine of evolution is, in effect, when ethical application of it is attempted, self-contradictory. "The pessimist who dedicates himself to evolution must either renounce redemption, or must become an optimist and find his felicity in evolution itself." As for Hartmann's imagination of a "cosmic suicide" initiated by the human race, it is "perhaps the most Titanic, and at the same time the maddest dream that mind of philosopher could conceive".

Die Entwicklung des Causalproblems in der Philosophie seit Kant. Studien zur Orientirung über die Aufgaben der Metaphysik und Erkenntnislehre. Zweiter Theil. Von Dr. EDMUND KOENIG. Leipzig: O. Wigand, 1890. Pp. xii, 488.

The author here completes his history of Theories of Cause, of which the first part, published at the end of 1888, was noted in MIND xiv. 154. The theories dealt with in the present volume are those of Maine de Biran, Schopenhauer, Trendelenburg, Herbart, Lotze, J. S. Mill, Laas, Goering, Spencer, Riehl, Hartmann, Volkelt, and Wundt. Finally there are chapters on "The Conception of Cause in the Natural Science of to-day" and "The Conception of Cause in the Psychology of to-day". Critical Notice of the work will follow.

Ueber die Abstraction. Von Dr. HANS SCHMIDKUNZ. Halle a. S.: C. E. M. Pfeffer (R. Stricker), 1889. Pp. 48.

Analytische und synthetische Phantasie. Von Dr. HANS SCHMIDKUNZ. Halle-Saale: C. E. M. Pfeffer (R. Stricker), 1889. Pp. vii, 108.

In the first of these pieces the author insists on the *positive* element in Abstraction. Mere "taking away," he shows, is not sufficient to constitute abstraction as a psychological process. There is also a "positing and new shaping," an "intensification" of one constituent of the total content of a phenomenon. 'Abstracts' and 'concretes' only differ in the degree to which this intensification takes place. The selected attribute in the case of the 'concrete' forms a weaker, in the case of the 'abstract' an intenser, constituent of our consciousness. Intensity of consciousness of the element positively attended to increases in proportion as consciousness is withdrawn from other elements. That is to say, it increases with the degree of abstraction.

The second piece is a study of the various forms of Phantasy or Imagination—both creative and merely receptive—according as they are "analytic" or "synthetic"; the distinction being that in synthesis the phantasy proceeds from "parts" to "whole," or from "question" to "answer," while in analysis it proceeds from whole to parts, or from answer back to question. The result is that the creative artist mostly works analytically, while the recipient first and most enjoys synthetically, but can afterwards proceed to an analysis and reconstruction resembling creation. It is only by having first a "whole" or an "answer" before

his mind that the artist can give to his work that appearance of absolutely necessary sequence from the data which constitutes the "truth" of art. To show us the motives in action is to create analytically. From the point of view of æsthetic value, therefore, analysis is in every way superior to synthesis.

Die Psychologie des Firmianus Lactantius. Ein Beitrag zur Geschichte der Psychologie von Dr. FRIEDRICH MABBACH, Diaconus in Weustadt a. d. Orla. Halle a. S.: C. E. M. Pfeffer (R. Stricker), 1889. Pp. 80.

A very good account of the psychological doctrines of Lactantius—who is studied monographically as a representative of Patristic philosophy before Augustine. The result of the whole is that the doctrine of the soul in the earlier Christian philosophy—and in Lactantius as representing this—is wholly dependent on ancient philosophy in detail, but is determined in its general character by the Christian view of the importance and ethical value of the individual soul; all elements of doctrine that conflict with this view being rejected, while those that can be assimilated by it are appropriated from every source. The distinctive turn was given to the new shaping of the theory of the soul by dualism together with an exclusively ethical direction of thought. Thus the opposition of soul and body became for Lactantius itself an ethical opposition; and this again determined his attitude to all psychological questions so far as they have ethical bearings. Those that have no obvious ethical bearings, the author shows, are hardly discussed; but, whenever he can, he brings out theoretical points that are of interest for the history of psychology. A point of special interest that he notes is the wavering of Lactantius on the question of the materiality or immateriality of the soul.

Die Physiologie der Tonkunst. Von Dr. EUGEN DREHER, weil. Docent an der Universität Halle. Halle-Saale, C.E.M. Pfeffer (R. Stricker), 1889. Pp. xi., 122.

An attempt to explain the distinctively æsthetic pleasure of music by "unconscious thought-activities". The pleasure taken in melody as in harmony, the author seeks to show, can only be due at bottom to an "unconscious mathematics". We ourselves—on suggestions given—put rhythm into the sounds that we hear. Our activity is unconscious—for our Ego—as in all sense-perception, and is essentially of the same kind as the intellectual element in perception generally. For physiological (or psychophysical) explanation we have to begin with harmony; melody being harmony developed in time: but it is essentially through melody that music becomes an art. To the detailed explanation of both alike, Helmholtz's researches contribute much, but they do not explain everything. Fuller explanation is got by a return to the theory of Euler—taken up by the author into his own explanation. Music, simply as such, Dr. Dreher goes on to contend, conveys definite ideas, which, in analogy with the hypothesis as to the production of simpler effects, may be viewed as the product of unconscious thinking.

Die Erkenntnisslehre der Stoiker. Von WERNER LUTHE. Leipzig: B. G. Teubner, 1890. Pp. 46.

An account of the Stoical Theory of Knowledge, following the authorities very closely and giving exact citations. The author concludes that in spite of its "sensualism" the theory of knowledge of the Stoics was "idealistic," since it is ruled by the thought that man can attain absolutely secure and perfect knowledge of things. This idealism in the

theory of knowledge is a result of the ethical "idealism" which, in spite of its theoretical materialism, was also a part of the Stoical doctrine. Man—or at least the sage—must be able to acquire perfect knowledge so that he may act—as it is supposed that he has the power to act—in accordance with the ethical ideal. Since the ethical doctrine of the Stoics was the result of a "subjective need," their theory of knowledge also may be said to have been determined by that need. It is at the same time "objective" in that it supposes certain representations to carry with them an infallible mark of truth.

Die Physiologie des Hasses. Von PAUL MANTEGAZZA, Professor der Anthropologie und Senator in Florenz. Einzig autorisirte deutsche Ausgabe. Aus dem Italienischen von R. TEUSCHER, Dr. med. Jena: H. Costenoble, [1890]. Pp. viii., 371.

Prof. Mantegazza's book on the *Physiology of Hate*, which is here very well translated, consists of lively description and acute analysis of the various phenomena—such as Cursing, Blood-revenge, Cannibalism, Duelling and War—that may be taken to be expressions of hatred between races or persons. The cause of hatred, in the author's view, is always pain in some form. The greater part of the contents of the book would, of course, be better described as Psychology than as Physiology; but, as in his work on Expression (see MIND No. 58, p. 289), there is to be noted the author's insistence on the scientific value of physiology and physiology alone for the study of man. In the last paragraph of the book, for example, "lens and scalpel," as the only proper means of investigation in "positive psychology," are placed in opposition to "theology and metaphysics".

Geschichte der Philosophie. Von Dr. W. WINDELBAND, Professor an der Universität Strassburg. Erste Lieferung. Freiburg i. B.: J. C. B. Mohr (Paul Siebeck), 1890. Pp. 128.

This is the first part (to be followed by two others) of a compend in which the author seeks to deal with the historical development of "philosophical problems" rather than with "philosophers" in their chronological order. The main divisions of historical time are to be preserved (Greek thought by itself being here put first), and biographical information is not omitted by the way; but such information is made quite subordinate to what the author holds of greater importance—the orderly exposition of the answers given to the chief philosophic questions that, in succession, have engaged the best thought of the race. It is a good idea to attempt thus to keep the "philosophical" from being lost in the "historical"; and Prof. Windelband's beginning promises well for the interest and value of the whole work. Reserving any critical appreciation till the work is completed, the writer of this note desires only, for the present, to dissociate himself from an opinion expressed in MIND xiv. 155, that an earlier manual of *History of Ancient Philosophy* by Prof. Windelband lacked distinctiveness of treatment. The view he there gave (and here, in the altered form, repeats) of the Democritean philosophy as a truly constructive system, standing over against the Platonic, departs very considerably from the usage of previous (general) historians, and—what is more to the purpose—departs in a way that materially helps to comprehension.

Psyche. Seelencult und Unsterblichkeitsglaube der Griechen. Von ERWIN ROHDE. Erste Hälfte. Freiburg i. B.: J.C.B. Mohr (Paul Siebeck), 1890. Pp. 294.

The author does not tell us anything as to the forthcoming part of this work; but the present part by itself is sufficient to mark it out as of importance both for its clear, full and interesting presentation of the facts and for its general idea. What is treated of so far is the development of the Greek popular (as distinguished from philosophical) view of the soul and of its immortality. The principal heads under which the development is studied are:—Belief in souls and cult of souls in the Homeric poems (pp. 1–62); Separated souls, Islands of the Blest (pp. 63–103); Cave and mountain-dwelling souls and deities (pp. 104–136); Heroes (pp. 137–186); The cult of souls (pp. 187–255); The Mysteries of Eleusis (pp. 256–276); Representations of life in the other world (pp. 277–294). Without seeking to establish a theory of the origin of Greek religion generally from “ancestor-worship,” the author brings out all the evidences of the presence of ancestor-worship among the religious ideas historically recorded. Everywhere he finds occasion to show the long persistence of those ideas of the life and power of separated souls in which ancestor-worship had its origin. In Homer, first of all, he is able to point out distinct traces of older beliefs than those that prevail in the Homeric poems themselves. Homer’s view of the soul he regards as having a certain individual character (though never actually *opposed* to the popular belief) and as indicating the last stage of a development of belief that has long been going on. For Homer, all souls, once finally separated from the body, dwell together in an underworld and have no influence on the world of living men. In the upper world there are no ghosts; and there is no immortality deserving of the name except in those rare cases where a particular person is by special favour removed from the world without separation of soul and body. Imperfectly understood customs and ceremonies recorded in Homer indicate, however, that this was not the primitive Greek way of viewing the soul; that in earlier times the separated soul had been thought of as much less shadowy and as still having power on earth. Further evidence of the more primitive belief is found in Hesiod, who records cults that had persisted in the agricultural villages of the Grecian mainland after they had been forgotten by the Ionic Greeks of the seafaring towns of the coast of Asia Minor. Yet even here the belief in a real immortality is thrust into past time. The separated souls of men of former times are regarded as enjoying immortality in abodes outside Hades; but the souls of the present race of men survive only in the shadowy way represented in Homer. The general cult of souls has, as it were, stopped. It now exists only in relation to the men of former ages, and has thus become an “ancestor-worship” that has ceased to multiply the objects of its devotion. The belief in an immortality of favoured individuals even of the present race of men, as the author goes on to show, has in the meantime never wholly ceased. For Hesiod, not only was the earth formerly peopled by races of men of whose immortality a tradition is preserved, but there is a constant new growth of legends of men exceptionally and specially immortalised. According to the view of the soul held in different periods, this immortality is differently conceived. In the Homeric scheme real immortality can be conferred only by continued union of body with ‘psyche’. Afterwards the earlier belief which attributes continued activity and consciousness to the separated soul is revived more and more. It is not, however, from legends of immortalised persons that the revived belief in a general immortality takes its origin. The origin of this is from those elements of the cult of souls that were preserved in local and family worships and in the religious ceremonies connected with

them. The cults that had persisted beneath the decay of primitive beliefs at length revived the beliefs in which they had their source. The idea of the continued consciousness and activity as distinguished from bare survival of the 'psyche' was in the end fully recovered. There was once more a belief in the natural immortality of all men. To the hopes excited by this restored belief the Eleusinian mysteries were an appeal. In the mysteries was sought, not a demonstration, by way of symbolism or otherwise, of the immortality of the soul—for this was now presupposed—but a livelier idea of the *mode* of existence of departed souls.

Das Bewusstsein und sein Object. Von Dr. JOH. WOLFF, Professor der Philosophie an der Universität Freiburg (Schweiz). Berlin: Mayer & Müller, 1889. Pp. xi, 621.

Discussions of psychological questions with a view to Theory of Knowledge. The treatment is from a somewhat old-fashioned point of view, as the author frankly acknowledges; the "trustworthiness of consciousness"—that is, of its immediate deliverances on disputed questions of philosophy—being assumed as an axiom. For the metaphysical basis of all psychological discussion the author assumes "a substance, a substratum, bearer, cause of psychical appearances, not a mere phenomenon, and also not a sum of phenomena". The problem he takes up at present is that of the construction of the mental life from its elements. These, he finds, are not "sensations," but "forms" or aspects. Two sides of the mental life which psychological analysis at once distinguishes are "Consciousness and its Object": hence the title of the book. Applying the results of his psychological analysis to the theory of knowledge, he finds that the substantiality of the Ego is testified to immediately by "internal consciousness," which yields with similar immediacy a considerable number of other concepts and axioms, including the law of causation (pp. 614-5). The "evidence" with which consciousness testifies to the applicability of concepts to reality and to the truth of axioms is "a phenomenon *sui generis*". The existence of real external objects causing the external reference of groups of phenomena is "physically" certain, but has not the immediate and axiomatic certainty of the substantial subject or Ego. Here the immediate certainty is the external reference; the externality of the cause is inferential.

Geschichte der Atomistik vom Mittelalter bis Newton. Von KURD LASSWITZ, 2 Bände. Hamburg u. Leipzig: Leopold Voss, 1890. Pp. xii, 518; viii, 609.

Specially trained in mathematics and physics, the author of this work is also fully alive to the philosophical import of his subject; and the result of his extensive and protracted research is much more than a series of chapters added to the history of physical science. So interwoven as physics and philosophy were in the thought of all the great heads of the 17th century, the history of the one when broadly enough conceived goes far to exhaust the historical interest of the other. Moreover, when, as in the present case, philosophical insight has joined with it an ability to judge of the earlier efforts at scientific understanding of the material world in the light of the latest, the general epistemological problem of Matter is helped forward in no mean degree. The author is able to limit his specific inquiry downwards, at the stage when the "corpuscular theory" proper gives place to the different conceptions with which the genius of Newton inaugurated the modern science of physics; upwards he does not seek to extend it, directly, beyond that

Middle Age to which the modern period joins on without break. But, if he chooses the later time, and especially the 17th century, as that in which the atomistic movement can be followed, in the full light of day, till it culminates and becomes spent, he does not fail to take due account of all that the ancients had been able to urge for and against a corpuscular doctrine of matter. Aristotle's opposition to the doctrine, as influencing the Christian Schoolmen, gets special prominence, before the author traces its mediæval revival in the philosophic or scientific work of Arabian thinkers. When he passes to its definite revival in the West, under non-Aristotelian Greek influence, or through the independent thought of the eager 16th century, he has then and later a number of individual efforts to chronicle which have not hitherto secured the recognition they deserved. In the 17th century may specially be noted his careful appreciation of Hobbes's philosophical contribution (ii. 207 ff.); still more, his assertion of the great Huyghens's claim to be regarded as highest representative of the corpuscular theory for purposes of effective science. An endeavour will be made to give, later on, some more particular account of the wide range of Herr Lasswitz's research and of the import of the ideas which he seeks to convey in the course of his exposition. Meanwhile his two volumes are strongly pressed on the attention of all who are interested in the philosophy of science.

RECEIVED also :—

- J. G. Frazer, *The Golden Bough: A Study in Comparative Religion*, Lond., Macmillan & Co., pp. xiii., 409, 407.
 C. Mercier, *Sanity and Insanity*, Lond., W. Scott, pp. x., 895.
 T. E. S. T., *The Two Kinds of Truth*, Lond., T. Fisher Unwin, pp. xvi., 381.
 E. B. Poulton, *The Colours of Animals, their Meaning and Use*, Lond., Kegan Paul, Trench, Trübner & Co., pp. xv., 860.
 F. Jordan, *Character in Body and Parentage*, Lond., Kegan Paul, &c., pp. 111.
 J. M. Robertson, *Christ and Krishna*, Lond., Freethought Pub. Co., pp. 156.
 H. Oldenberg, J. Jastrow, C. H. Cornill, *Epitomes of Three Sciences* (Comp. Philology, Psychology, O.T. History), Chicago, Open Court Pub. Co., pp. 189.
 P. Petroz, *Esquisse d'une Histoire de la Peinture au Musée du Louvre*, Paris, Alcan, pp. 290.
 H. Goitein, *Der Optimismus und Pessimismus in der jüdischen Religionsphilosophie*, Berlin, Mayer & Müller, pp. viii., 112.
 G. Heymans, *Die Gesetze und Elemente des wissenschaftlichen Denkens i*, Leiden, S. C. van Doesburgh, pp. 270.
 Stiborius, *Die Kategorien der sinnlichen Perception*, Leip., G. Fock, pp. 144.
 P. Barth, *Die Geschichtsphilosophie Hegel's u. der Hegelianer bis auf Marx u. Hartmann*, Leip., O. R. Reisland, pp. 149.

NOTICE will follow.

IX.—FOREIGN PERIODICALS.

THE AMERICAN JOURNAL OF PSYCHOLOGY.—Vol. iii., No. 1. P. C. Knapp—The Insanity of Doubt. [A fairly comprehensive survey (with bibliography) of the work that has been done on this subject—defined, not very neatly, as “a form of mental disturbance, which is brought about by certain disturbances of the psychical processes, to which the various names of insistent or fixed ideas or imperative conceptions are given.”] W. B. Lombard—The Effect of Fatigue on Voluntary Muscular Contractions. [An experimental demonstration that forced exertion of fatigued muscles results in a rhythmic alternation of recovery and loss of power. The periodic renewal of power appears to the author to depend on changes in the central nerve-system.] J. Jastrow—Studies from the Laboratory of Experimental Psychology in the University of Wisconsin. [A number of minor researches, with students as helpers, directed mostly to points connected with the problems of the psychophysical law: firstfruits of a laboratory instituted in 1888.] G. S. Hall—Children's Lies. [An interesting and subtle discussion, with classification, of the forms of untruth displayed by school-children, based upon a large collection of facts made by a number of female teachers.] G. S. Hall—A Sketch of the History of Reflex Action. [Introductory.] Psychological Literature. [Surveys by different hands, under the heads, Nervous System, Heredity and Sex, Criminology, Experimental, Abnormal, Miscellaneous.]

REVUE PHILOSOPHIQUE.—An. xv., No 4. A. Fouillée—L'évolutionnisme des idées-forces. iii. Les conséquences pratiques de la théorie (fin). [Continues the argument for the efficiency of mental factors in the real process of things. Visual and tactile representations of motion are only a partial way of representing the real,—just as partial as sounds, temperatures, &c. If we compare the “external” with the “internal” mode of apprehension, we find that the internal is “richer,” more “complete”. Instead of being the *reality*, motion is only a mode of symbolical representation corresponding to something that consciousness seizes in ourselves when it is at its most rudimentary and its poorest. The generality of the mechanical and quantitative aspects of phenomena gives them a scientific advantage, but the philosopher cannot regard the quantitative and mechanical side of the real as exhausting its nature and its basis. If motion is not transformable into consciousness; if the real relation is that the sum of the corporeal movements of an organism corresponds to the sum of its psychical states; this is not to say that consciousness is without force. In reality we get the notion of force or activity entirely from consciousness. The article ends with a brief application of the general theory of “idea-forces” to ethics.] J.-J. Gourd—Un vieil argument en faveur de la métaphysique. [Both for questions of existence and of essence, “phenomenal science” properly understood suffices. All metaphysic has for its object “the ultra-phenomenon, that which goes beyond experience”. But from appearances we can logically arrive only at appearances. Within the world of phenomena there is room for all those theoretical contrasts of which one term has usually been placed within and one without the phenomenal world. Subject and object, true and false, and so forth, are contrasts within the world of phenomena. The true justification of metaphysic is its requirement on practical grounds.] L. Proal—La responsabilité morale des criminels. [Argues to the doctrine of Free-will (1) from its implication in all penal codes, (2) from the fact that criminals themselves acknowledge their moral responsibility.] Rev. Gén. (L. Arréat—Récentes

travaux sur l'hérédité). Analyses, &c. (W. A. Macdonald, *Humanitism*; A. W. Holmes-Forbes, *Know Thyself*, &c.). Rev. des Périod. Société de Psychologie Physiologique (J. Héricourt—Projet de questionnaire psychophysique). No. 5. H. Lachelier—La métaphysique de Wundt (i.). [Exposition of Prof. Wundt's *System der Philosophie*.] J.-M. Guardia—L'histoire de la philosophie en Espagne. [Discusses some recent Spanish writers on the history of philosophy in Spain.] J. Payot—Sensation, plaisir et douleur. [Every conscious sensation is the translocation, in terms of consciousness, of a reaction of the whole organism on an external impression. With sensation, pleasure and pain are inextricably joined; being results of modifications of the state of the organism as regards force. The vital functions require certain expenditures; this is the "debit" of force. There is so much to expend; this is its "credit". When, with a given sensation and a given state of the organism, debit is in excess of credit, or vital need in excess of force required for reaction, there is pain; when force is in excess of need, there is pleasure. Pleasure and pain, accordingly, do not produce, but are the results of, an increment or decrement of vitality.] Rev. Gén. (G. Tarde—Misère et criminalité). Analyses, &c. Société de Psych. Phys. (C. Richet—Un cas de cécité expérimentale double chez un chien, avec autopsie. P. Langlois et C. Richet—De la sensibilité musculaire de la respiration). No. 6. G. Sorel—Contributions psycho-physiques à l'étude esthétique (i.). [The office of psychophysic—the "new science" founded by Fechner—is in relation to æsthetics negative rather than positive; but its negative service may be very great. At the beginning of every æsthetical investigation the two questions must be put: (1) Are all representations of the same species? (2) Does pleasure result from relations between things represented? First, psychophysical formulæ are found to be specific, not only according to the sense that is exercised, but also according to the kind of representations within the particular sense. The special case of music is then discussed; the result being the rejection of all doctrines which, like that of Euler, trace musical feeling to mathematical proportions unconsciously perceived. A positive theory is finally suggested, which traces the two opposite effects of music—its exciting and its calming effect—to a single cause, *viz.*, its exclusive occupation of the attention and consequent stoppage of the reasoning process. When the ideas are perturbed to begin with, or when the absorption is not excessive, the effect is calming; when the absorption is complete, and the normal reasoning process in consequence wholly suspended, the effect is the mystical excitement known among religious sects in the East and familiar to ancient writers.] H. Lachelier—La métaphysique de Wundt (fin). P. Regnaud—Sur l'origine et la valeur des fonctions casuelles dans la déclinaison indo-européenne. E. Naville—La science et le matérialisme. [Psychical phenomena, having, according to the doctrine of Conservation of Energy, no mechanical equivalent, differ in themselves, and independently of their mode of being known, from physiological phenomena. Materialism must therefore be rejected on scientific grounds. Also, abnormal facts recently attended to throw doubt on the concomitance of ordinary material phenomena with all activities of mind. This again makes materialism unscientific; suspension of judgment at least being called for. The materialistic doctrine does not really emerge from science, but is put into it by *a priori* speculators.] Analyses, &c. Société de Psych. Phys. (Pierre Janet—Une altération de la faculté de localiser les sensations).

RIVISTA ITALIANA DI FILOSOFIA.—An. v. 1, No. 2. A. Nagy—Sulla recente questione intorno alle dimensioni dello spazio. R. Benzonì—Recenti soluzioni del problema della conoscenza. [Treats of the doctrines

of perception put forth recently by Wundt and Uphues (who are placed together and compared in detail), von Hartmann and G. L. Fischer. The conclusion is that on the solution of the question of perception depends the decision of the controversy between idealism and realism.] S. Ferrari—La scuola e la filosofia pitagoriche (ii.). Bibliografia, &c. (F. Max Müller, *Lectures on the Science of Language and Natural Religion*, &c.). No. 8. L. Ferri—Il problema della coscienza divina in un libro postumo di Bertrando Spaventa. S. Ferrari—La scuola e la filosofia pitagoriche (iii.). [Points out, in some critical remarks, the originality of the Pythagorean doctrine. So far as it was not the result of independent thought, it was determined by the characteristics of the Dorian race and institutions, not by influences from the East.] N. R. d'Alfonso—La lotta nell' educazione. [On the importance in education of the struggle against external causes tending to injure the organism or the mind.] A. Marconi—Della incoerenza morale. [Cites inconsistencies in the moral characters of individuals, and finds that "incoherence," or the mixture of good and evil tendencies, is part of the very structure of human beings.] Bibliografia, &c.

RIVISTA DI FILOSOFIA SCIENTIFICA.—Vol. ix., No. 1. G. Tarozzi—Giovanni Maria Guyau e il naturalismo critico contemporaneo (i.). [On Guyau as poet and aesthetician]. E. d'Ovidio—Sulle origini e sullo sviluppo della matematica pura. Resoconti di Congressi e Società scientifiche (Associazione britannica pel progresso delle scienze). Rassegna Bibliografica (J. P. Mahaffy and J. H. Bernard, *Kant's Critical Philosophy for English Readers*, &c.). Rassegna dei Periodici. No. 2. P. Vecchia—La pedagogia nei suoi rapporti con le scienze. [A noteworthy point of this article is the condemnation, based on the fact of psychological heredity, of "didactic methods which, without wishing it, render the easy difficult". If there is any accumulation of aptitudes—in civilised races, for example, as compared with savage—then the educator may easily go to excess in trying to simplify the process of individual acquirement. "Just as there would be fatigue in traversing in a hundred small steps a path that we could complete in twenty ordinary paces, so we weary the mind of the child when we oblige it to receive drop by drop that which it could take in at a draught. To this defect an ill-understood objective teaching is frequently incident." The author announces a forthcoming Italian translation of Mr. Sully's *Teacher's Handbook of Psychology*.] G. Tarozzi—Giovanni Maria Guyau, &c. (ii.). [On Guyau's ethical and religious philosophy.] A. Alberti—Sulla relazione fra il peso atomico e l'ufficio fisiologico degli elementi chimici. Riv. Anal. Rassegna Bibliografica. Rassegna dei Periodici.

PHILOSOPHISCHE MONATSHEFTE—Bd. xxvi., Heft 5, 6. G. Geil—Die schriftstellerische Thätigkeit des Diogenes von Apollonia. [The assertion of Simplicius that Diogenes of Apollonia wrote other works in addition to the treatise *περί φύσεως*, which alone had been preserved down to his time, ought not to be so lightly set aside as it has usually been by modern historians of philosophy.] A. Biach—Aristoteles' Lehre von der sinnlichen Erkenntniss in ihrer Abhängigkeit von Plato. [Seeks to show, by reference chiefly to *Theætetus*, *Timæus* and *Philebus*, the dependence of Aristotle on Plato in the theories of sense, memory and (to a less extent) imagination.] H. Cohen—Zur Orientirung in den Losen Blättern aus Kants Nachlass. Th. Lipps—Aesthetischer Litteraturbericht (Schluss). [Deals with works on the æsthetics of poetry. The procedure of æsthetics can never become identical with that of natural science, as is contended by one of the writers discussed. The reaction against "philosophical

legislation" in the theory of poetic is now complete, and it has to be seen that a true 'poetic' is normative as well as scientific. So far as it is scientific, it is based on psychology. The author insists again on his doctrine that the expression of a real or imagined internal life (always under a humanised form) is the essential thing in art. Near the end he has some acute remarks on the theory of "poetical justice" as applied to tragedy.] Recension. *Litteraturbericht*, &c. Heft 7, 8. A. Döring—Ueber den Begriff des naiven Realismus. [The opposite of "naïve realism" is not "transcendental," but "critically reflective" realism. Of this there are several stages; v. Hartmann's "transcendental realism" being one stage.] E. Wille—Verbesserung einiger Stellen in Kant's K. d. r. V. Recensionen. *Litteraturbericht*, &c.

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE.—Bd. xiv., Heft 2. A. Döring—Was ist Denken? [Thinking is spontaneous combination of representations in the service of an end that has worth and necessity for our existence and well-being: its first mark, accordingly, is "timological necessity of the end". Its other marks are (2) teleological or practical necessity of the means, (3) theoretical truth or rightness of combination.] H. Höffding—Ueber Wiederkennen, Association und psychische Activität (iii.). [Association by similarity is irreducible to "contact-association". The laws of association, separately formulated, are abstract expressions of a real process which always involves both "contact" and "similarity," one or other of the two preponderating in particular cases. All association is an "expression of the energy of consciousness". Spontaneous activity goes in the direction of least resistance and easiest discharge: by this principle both forms of association are explained. The true fundamental law of association is Hamilton's "law of totality"; the unity of consciousness being the presupposition of all association. Comparison is to be explained by transitions of "attention". It has two forms—the "involuntary" and the "voluntary". "Voluntary comparison" is identical with "true thought". No special 'faculty' of Thought need be assumed in addition to Association.] J. Petzoldt—Maxima, Minima und Oekonomie (i.). *Selbstanzeigen*, &c.

PHILOSOPHISCHE STUDIEN.—Bd. vi., Heft 1. W. Wundt—Zur Frage der Localisation der Grosshirnfunctionen. [A powerful criticism of H. Munk's doctrine of localised cerebral functions, asserted by Munk (especially in a Berlin Academy memoir of 20th June, 1889) to be an application as well as confirmation of the Müller-Helmholtz theory of specific energies. Wundt finds nothing to be advanced by Munk that can in any way turn the edge of his own objections (as urged in *Phys. Psych.*) against the famous theory; and takes occasion to expose the psychological crudity of the second part of Munk's doctrine, in which a fanciful assertion of a "soul-centre" (for memory-images) is superposed upon a delimitation of "cortex-centres" not differing in principle from the now accepted separation of sensory areas.] C. Lorenz—Untersuchungen über die Auffassung von Tondistanzen. [An elaborate research, of which the main results are (1) that there is direct apprehension of pitch-interval, apart from any implication of the partial tones that constitute timbre-relationship; (2) that it does not conform to Weber's law, though Weber and Fechner regarded it as the strongest and most obvious instance in their favour. The author also finds that the method of considerable differences (at least when combined with the method of correct and mistaken cases) is applicable to sounds as well as to light-intensities.] W. Brix—Der mathematische Zahlbegriff u. seine Entwicklungsformen (ii.). [An

extensive third chapter of this essay, devoted (the chapter) to a critical survey of the main epistemological theories of number from ancient to modern times. The English nominalists (from Hobbes) receive their due share of attention.]

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE.—Bd. iii., Heft 8. P. Natorp—Aristipp in Platons Theätet. [Accepts F. Dümmler's view that the sensualistic theory in the *Theaetetus* 156A—157C is taken from Aristippus (not directly from Protagoras), at the same time giving grounds for not accepting all Dümmler's minor positions.] A. Döring—Die aristotelischen Definitionen von σύνδεσμος und ἄρσπον Poetik c. 20. H. Siebeck—Ueber die Entstehung der Termini natura naturans und natura naturata. [The terms 'natura naturans' and 'natura naturata' were already in use in the middle of the thirteenth century. The Spinozistic distinction, in its essence, is an old one, having been already drawn by Proclus, &c., but it was expressed by other terms. How did the new terms come into use to express it? The answer is, from the Latin translations of Averroes. Here they have a different meaning from their later one, the Spinozistic distinction being otherwise expressed by Averroes; but, once suggested, they were found the fittest terms to express the distinction.] C. E. Ruelle—Damascius: Son traité des premiers principes. [Defends the unity of the text of Damascius; proposing afterwards to show its importance for the history of Græco-Oriental philosophy, and to describe its contents and its relations to other writings of the Neo-Platonist school.] R. Stölzle—Eine neue Handschrift von Giordano Brunos liber triginta statuarum. [Description of MS. found by the author in the municipal library at Augsburg.] W. Lutoslawski—Eine neuaufgefundene Logik aus dem XVI. Jahrhundert. [The *Liber triginta statuarum*, of which a manuscript-copy has been discovered by the author of the preceding article, forms also a portion of the Noroff MS. preserved in the Rumianzow Museum at Moscow. As it is a work of Bruno that is quite unknown, a long extract is here given, extending over pp. 895—417 of the *Archiv*.] W. Dilthey—Der Streit Kants mit der Censur über das Recht freier Religionsforschung. [Gives extracts from the "Rostock MSS." bearing on Kant's conflict with the censorship as to the publication of writings on religion.] H. Diels—Ein gefälschtes Pythagorasbuch. Jahresbericht (B. Erdmann, C. B. Spruyt). Neueste Erscheinungen.

PHILOSOPHISCHES JAHRBUCH.—Bd. iii., Heft 1. Hayd—Vereinbarkeit oder Unvereinbarkeit unbeschränkter Freiheit der wissenschaftl. Forschung mit einem dogmatisch bestimmten Glaubensbekenntniss (i.). ["The Catholic is in no way limited in his freedom to *investigate*, but in his freedom to *err*." The results of scientific research, not scientific research itself, are the proper object of ecclesiastical control. Men of science, accordingly, though not the uninstructed general public, should be left free to pursue their investigations without interference until it is seen what conclusions are arrived at. And, since a non-Christian may lawfully investigate the grounds of belief—since otherwise his conversion would be impossible—so also may a Christian. This article is published on the author's sole responsibility, and appears with an editorial caveat. The opinion that the prohibition of writings dangerous to the faith affects only the uninstructed, and that the Church should not forbid their publication and examination "in learned circles, to which judgment belongs," is held to be "rash" (*gewagt*). And, by those who have accepted the faith, testing of its authority must never be "dubitative," but only "confirmative".] C. Gutberlet—Der Kampf um die Willensfreiheit (ii.). J. Costa-Rossetti—Die Staatslehre der christlichen Philoso-

phie (iii.). [The chief objection to the doctrine (set forth by the author) of "the mediate divine right of sovereigns" is that it appears to place sovereignty, at the origin, in "the whole people". Since, however, the Catholic writers on whose expositions it is founded held the patriarchal theory of the origin of kingship, this objection falls to the ground.] E. Illigens—Die unendliche Menge (ii.). Recensionen und Referate. Philosophischer Sprechsaal (N. Kaufmann—Erwiderung auf die Kritik der thomistischen Erkenntnisslehre). Zeitschriftenschau. Miscellen und Nachrichten. Heft 2. C. Braig—Eine mongolische Kosmologie (i.). [Founded chiefly on a translation of the work of Ssanang Ssetsen (1662), a Buddhistic descendant of Genghis Khan. The "instinctive aim" of the cosmological speculation set forth was a theistic doctrine like that of St. Augustine, but, from psychological reasons explained, it went astray into "the labyrinth of monism".] J. Costa-Rossetti—Die Staatslehre der christlichen Philosophie (Schluss). [Conclusion with summary. The reverence due from subjects to sovereigns is no smaller on the supposition of "mediate" than of "immediate" divine right. The two doctrines, however, present important theoretical differences, and the latter is seen from its consequences not to be the true scholastic theory.] E. Illigens—Die unendliche Menge (Schluss). [Concludes an argument that the number of existing things is always finite, but that there is no limit to the number of possible things.] M. Sierp—Pascals Stellung zum Skepticismus (iii.). Recensionen und Referate. Philosophischer Sprechsaal (Wie ist die Pädagogik Herbart's und seiner Anhänger von Katholischem Standpunkte aus zu beurtheilen?). Zeitschriftenschau. Novitätenschau. Miscellen und Nachrichten.

ZEITSCHRIFT FÜR PSYCHOLOGIE U. PHYSIOLOGIE DER SINNESORGANE.—Bd. i., Heft 1. This first No. of a new bi-monthly has come to hand too late for it to be possible to give more than a bare chronicle of the contents. They are as follows:—Zur Einführung. H. v. Helmholtz—Die Störung der Wahrnehmung kleinster Helligkeitsunterschiede durch das Eigenlicht der Netzhaut. E. Hering—Beitrag zur Lehre vom Simultankontrast. G. T. Fechner—Ueber negative Empfindungswerthe. S. Exner—Das Verschwinden der Nachbilder bei Augenbewegungen. H. Aubert—Die innerliche Sprache u. ihr Verhalten zu den Sinneswahrnehmungen u. Bewegungen. T. Lipps—Ueber eine falsche Nachbildlokalisation. F. Schumann—Ueber das Gedächtniss für Komplexe regelmässig aufeinander folgender, gleicher Schalleindrücke. The contents of the No. may be taken as fairly indicating the scope of the Review, when it is added that future Nos. will also include summary reports of all new results bearing on its special field that appear either in other periodicals or in independent publications. Just as, on the one hand, it has been found necessary or advisable, in Germany, to start a special Review for History of Philosophy, so, on the other hand, there is good reason, in these days of specialised research, for separating out from the whole range of subjects covered by the older kind of philosophical journal those particular departments of scientific inquiry to which this new Review will be confined. Psychology, while understood in its widest sense as positive science, is rightly placed first in the title as marking out the subject-matter to which the physiological consideration is to be kept always relevant. (The 'Physiology,' it is explained, will of course not be confined to Sense-organs only, but extend to the Nervous System in general.) The new review is edited by Herm. Ebbinghaus and Arthur König, with the special support of H. Aubert, S. Exner, H. v. Helmholtz, E. Hering, J. v. Kries, T. Lipps, G. E. Müller, W. Preyer, C. Stumpf; and published by L. Voss of Hamburg and Leipsic.

X.—NOTES.

SOME NEWLY DISCOVERED LETTERS OF HOBBS.

Dr. F. Tönnies has discovered, in the National Library at Paris, seventeen letters of Hobbes to the French physician Sorbière, who saw the *De Cive* through the Amsterdam press in 1647, translated it into French in 1649, followed it in 1652 with a French translation of the *De Corpore Politico*, and remained Hobbes's devoted admirer to the last. Dying in 1670, Sorbière left a large mass of correspondence which he had carried on with the notorieties of his time; and this was presently prepared for the press by his son, but did not get into print. It is in the MS. collection so prepared (now preserved in the Paris library) that the Hobbes-letters have been found. Dr. Tönnies gives the whole seventeen at full length (omitting only some useless mathematical matter from the 16th) in the *Archiv f. Gesch. d. Phil.*, iii. 58-71, 192-232, with related letters of Sorbière himself, Mersenne and others, and the necessary commentary; this last marked (in spite of some doubtful statements) by all the high characteristics that have distinguished his previous writing on Hobbes. He quotes as from Nicéron (*Mémoires des Hommes illustres*, iv. 96) a reference to the unpublished collection (prepared by the younger Sorbière, 1678) which I cannot find in the 1727 edition; but as to the genuineness of the Hobbes-letters there can be no question with anyone that knows those facts and circumstances of the philosopher's life upon which they cast a welcome new light. Five of the seventeen—not the most interesting of the series—did (according to Dr. Tönnies) get into print as early as 1660, in a small collection issued by Sorbière himself, which has become one of the rarest of bibliographical curiosities. Below are given, with a minimum of comment, the first nine, having reference to the really important period of Hobbes's life and work that led up to *Leviathan* in 1651. After the 9th letter in 1649, a break ensued in the correspondence, and, when it was resumed from 1656, the (eight) letters that have been preserved (till 1663) are of such minor importance—having reference mainly to the scientific polemics of Hobbes's old age—that they may be left to the scholar to seek out in the *Archiv*. The general reader, on the other hand—if not deterred by the careless Latin in which so great a master of English, and also in his books effective enough Latin stylist, was content to write familiarly—will find in the earlier letters not a few points of biographical or philosophical interest. Extant letters of Hobbes were before few in number.

The first letter bears upon the new edition of *De Cive* which, from 1646, Sorbière had undertaken to bring out at the Elzevir press. The book, under title of *Elementorum Philosophiæ Sectio Tertia, De Cive*, had appeared, quarto size, in 1642, at Paris; not anonymously (as Dr. Tönnies, misled by some correspondence at the time between Sorbière and Martel, another French friend of Hobbes, supposes) but still only with the initials 'T. H.' at end of the dedicatory letter to the young Earl of Devonshire. The few copies then printed having, as Gassendi said, excited rather than satisfied thirst, Hobbes was prevailed on by Sorbière, who towards 1645 had become personally known to him, to make a more effective publication. For this he provided a new preface

and footnotes, while Gassendi and Mersenne supplied commendatory epistles. In the letter are to be noted his general distrust of professional rivals and his special suspicion of Descartes (whose correspondence, however, shows no mean appreciation of the *De Cive* on its first appearance); cp. *Hobbes* ('Blackwood's Phil. Classics'), p. 58.

I. Ex literis tuis ad D. Martellum nostrum quibus te venisse Hagam cognovi incolumem, hoc ipso die (mi Sorberi dilectissime) cepi voluptatem, quam tua bonitas et timor itinerum, incommoda atque pericula sola recordantis, non patiebantur esse mediocrem. Itaque quod molestis illis cogitationibus primo tempore me liberaveris, id quoque amicissime a te factum est. Quod in iisdem literis praeftationem meam laudas, secunda voluptas erat, nam et delector judicio tuo, et quamquam nimium laudas, tamen affectus quo id facis ad id quod ago utilis est, nam ut typographo spes fiat fore ut liber ille vaeniat, laudatoribus et magnis et quibus credi possit opus est. Itaque et D. Gassendus et R. P. Mersennus librum illum hyperbolice laudaverunt, mihi arte [? certe] potius quam sibi satisfaciētes; quorum utriusque literas jam pridem te puto accepisse. Quae editionem impedire posse videntur, sunt primo si ejusmodi librum scierint sub praelo esse ii qui dominantur in Academiis, ad quorum pertinet existimationem ne quis in ea doctrina quam profitentur viderit quod illi prius non vidissent. Itaque tacite peragendum est, nec quaerenda testimonia nisi quae obtineri posse certo scias. Neque ergo si prohiberi potest, typographo permittendum est homines suo ipsius judicio doctos de libri utilitate consulere. Deinde cavendum est ab iis qui cum pleraque probent, reliqua improbant, nam magistros agunt, ac laude quam privatim ipsi mihi tribuunt contentum me debere esse putant, publicam invidēbunt. Praeterea, si id agi ut edatur liber meus (vel hic vel quilibet alius) sentiat vel aspicetur D. Des-Cartes, certo scio impediturum esse si potest, quod unum velim mihi credas qui scio. Caeteram cautelam omnem tibi permitto. Nam et prudentiam et voluntatem in me tuam penitus perspectam habeo. Cum spem edendi viridis aliquam, fac me quaeso certiore quam primum potes, ut eam spem, si fieri possit, mecum Montalbani feram. Illuc iturus sum cum D. Martello, qui et causa mihi eundi maxima est, quanquam accedat altera haec ut perficiendae parti primae meorum Elementorum majore otio vacare possim. Ibiinus circa finem mensis proximi, aut aliquanto citius. Vale. Tuus devinctissimus, Thomas Hobbes. Parisiis Maj. 16. 1646.

The second letter replies to one from Sorbière, which appears to have crossed (rather than answered) the first. The shortened title of the book, when it finally came out in 1647, was *Elementa philosophica de Cive*. What Hobbes says of his work up to date upon the *De Corpore* is, otherwise, the thing of most importance in the letter. As to "Opticæ meæ," cp. *Hobbes*, p. 59. The "Johnson" who had promised to send him the physical system of Regius (Le Roi, Descartes' eager follower) is mentioned in Sorbière's letter in an accidental conjunction, which is too odd not to be quoted here: "Quam gratum fecerim viris summis, solideque philosophantibus, *Boswellio, Johnsonio, Bornio*," &c.

II. Literis tuis quas a D. Martello proxime accepi magnopere delectatus sum. Fructum enim omnis operae et laboris praeteritæ amplissimum fero, quod placeant ea quae scripsi viris illis tantis quos nominasti, et tibi quoque; spem fecisti fore ut edantur. Quod scribis videri Elzevirio, si prodeat liber tanquam pars majoris operis nondum editi, homines illum minus libenter empturos esse, ego idem censeo, quare

mutetur titulus, fiatque simpliciter DE CIVE. Caeterum mutationem tituli sequitur necessitas ea loca tollendi, in quibus mentio aliqua fit sectionis praecedentis, quae quidem loca non multa sunt, nec talia quae non possunt tolli facillime, excepto initio capitis primi quod poterit esse huiusmodi : *Naturae humanae facultates ad quatuor genera reduci possunt : vim corpoream, experientiam, rationem, affectum. Ab his sequentis doctrinae initium capientes inquiremus primo loco quid animi habeant homines illis facultatibus praediti, alteri adversus alteros.* Et an. Item initio capitis quinti pro his verbis *Ostensum est sectione praecedenti* substitui haec possunt *Manifestum per se est.* Caeteris locis cum mentio sectionis praecedentis sub parenthesi tantummodo fiat, poterit ea sine hiatus, sine incommodo deleri, et pag. 4 linea 21 et pag. 17 linea 15 et fortasse uno aut alio loco alias. Tollantur ergo eae parentheses, et fiat titulus ut dixi brevis simplexque DE CIVE, sed cavendum est ne superiorum capitum articulorumve citationes deleantur. Itaque nisi ubi vox *sectio* occurrit, nil movendum est.

Quod in Elementorum meorum sectione prima tamdiu versor, partim quidem causa est pigritia; sed maxime quod in sensibus meis explicandis non facile placeo mihimet ipsi. Nam quod in doctrina morali fecissem spero, id quoque in Philosophia prima, et in Physica facere studeo, ne locus sit relictus contrascriptori. Attamen de ea absolvenda intra annum vertentem, modo vivam et valeam, minime dubito. Itaque ut rei magis vacem, stat secedere rus, praesertim Montalbanum, nostri Cl. Martelli gratia. Expectatio amicorum excitat industriam meam aliquantulum, sed tu me blanditiis tuis ad scribendum potenter adigisti atque impulisti. Accedit quoque quod ipse Opticae meae (quam anglice scriptam dedi Marchioni de New Castel) firmitate et robore delectatus, cupiam primo tempore emittere eam latine. D. Johnsonius promisit mihi brevi se missurum D. Regii Systema Physicum; ut id fiat quam primum quaeso adjuva. Vidi enim jam quaedam dogmata ejus physica in libro quodam medico, quae mihi valde placuerant. Vir optime, vale. Parisiis Iuni 1^o 1646. D. Gassendo salutem tuo nomine dicam cras; aegrotat a febre quae tamen nunc leviuscula est. Mersennus nondum rediit.

The third letter answers more than one from Sorbière, who had conceived no ordinary expectations on learning that Hobbes (towards the end of summer) had been appointed tutor to the Prince of Wales, now come to Paris as a fugitive (cp. *Hobbes*, p. 68). Hobbes, in the important final paragraph, tells how completely and for what reasons his engagement (as mathematical teacher) was devoid of all political significance. The "Epigramma Dⁱ Bruno" was a legend composed by an admirer for the portrait that was to be given with the *De Cive*.

III. Clarissime charissimeque Sorberi, cum a te ad Martellum nostrum diu nullae literae venissent cogitabam mecum modo typographum descripsisse, modo folium aliquod libri vel annotationum interiisse. Nam de valetudine tua et tuorum nolui, de conatu tuo non potui, dubitare. Sed quidquid erat impediementi, cum nescire moleste ferrem, rogavi D. Martellum ut de ea re ad te scriberet. Id quod nunc factum nollem. Accepta enim epistola tua, tantas tibi gratias debere me sentio ut querelarum poeniteat et pudeat, si tamen ille quicquam questus est, nam rogavi ut quaereret, non ut quereretur.

Literas tuas ad D. Gassendum et P. Mersennum (una cum epigrammate Dⁱ Bruno) illis curavi tradendas.

Quod attinet ad folium impressum quod misisti, valde mihi placet et

character literarum, et volumen, neque erratum typorum quod alicuius sit momenti, ullum reperio, praeter unum (sed magnum) pag. 1472 ubi pro *Duritas* ponitur *Claritas*. Dixi conclusionis *Duritatem* praemisarum memoriam expellere: id quod verum est. Contra fuisset si dixissem *Claritatem*. Duae illae voces scripturam habent fere similem; propter quam causam, et quia forte putabat typorum compositor vocem hanc *Duritas* non esse latinam (nam saepius dicitur *Durities*) factum est ut pro *Claritate* accepta sit. Vox *Duritas* latina est et Ciceroniana, cum sermo sit de dictis duris, quamquam de corporibus duris *Durities* potius usurpatur.

Quod scribis te sedem Leydae fixurum, vehementer gaudeo, cum tui causa qui conversabere cum doctissimis viris, tum mei qui amicis meis illic euntibus quo gratum facere possim tua ope habiturus sum. Scripsi nuperrime (ante tamen quam acciperem literas tuas) ad Comitem Devoniae patronum meum cui filius est sex (sc. annorum?) et unicus, ad quem instituendum opus est viro. Ex tua, Gassendi Martelli commendatione cognovi esse D. Du Prat. Si ille conditionem merito eius convenientem [cupiet?], enitar quantum possum, utriusque causa, ut se Lugduno Londinum transferat.

Quod mihi de praesente loco gratulatus sis, agnosco benevolentiam tuam. Sed cave ne eam rem majoris putes esse quam est. Doceo enim Mathematicam, non Politicam. Nam praeceptis politicis quae habentur in libro qui inprimitur, imbui illum, ipsius aetas nondum sinit, et judicia eorum, quorum consiliis aequum est regi illum, semper prohibebunt. Si quid ego diuturno officio gratiae apud eum collegero, scias me eo usum omni, non tam ad meas quam ad amicorum meorum commoditates, et ad tuorum quoque si aliquos commendaveris. Sed multum sperare neque humilitas mea neque aetas patitur. Vale Charissime Sorberi, et ama Tuum Th. Hobbes. Dab. S. Germ. Octob. 4. 1646.

In the fourth letter, with continued anxious care for the correct printing of his book, there is again sign of Hobbes's grudge against Descartes: he can no longer hope much of Regius, content to copy that original.

IV. Amice clarissime, accepi iam duo a te epistolas in quarum priore quam acceperam ante dies circiter viginti, folium primum incluseras, atque etiam duas epistolas, alteram ad R. P. Mersennum alteram ad D. Gassendum, quas ambas illis dari curavi diligenter; et statim rescripsi. In posteriore accipio nunc tria simul folia prima cum literis ad DD. Martellum et Prataeum quas ad eos jam transmittam. In superiore mea epistola notavi erratum typorum unum pag. 14 l. 2, nempe *Claritas* pro *Duritas*. In secundo folio noto jam duo alia magni momenti, quaeque sententiam corruptump, pag. 48 lineis 19 et 23, nimirum vox *quaerere* lin. 19 et vox *Ergo* linea 23, quae ambae delendae sunt, nam illis stantibus sensus nullus est, deletis optimus est. Nescio quomodo voces illae irrepserint, aut quia periodus longa non satis a typorum compositore comprehendebatur, illi visum est locum sic emendare, aut ego redigendo illum locum ita putavi emendandum esse, cum non esset opus, nam in exemplari impresso Parisiis illae voces non sunt. Video periculum magnum esse ne in aliis quoque locis similiter erretur, cum neque mea scriptura satis distincta sit, neque ego neque tu praesentes simus; sin accidat ut reliquum libri sine magnis mendis impressum fuerit, non gravabor meis impensis paginam illam 48 cum adhaerentibus denuo imprimere. Alioqui corrigenda sunt errata, et ante initium libri in conspectum danda sunt, ut ab ipsis lectoribus corrigi possint.—Expecto iam

ut *Physica Regii Parisiis* venalis fiat; etsi enim de spe mea verba illa (*copie de celui de M. des Cartes*) aliquantum detraxerint, cupio tamen videre quid sit cuius causa librum illum tanta fama antecessit. Agam quantum potero cum D. Gassendo ut quicquid imprimendum habet vobis transmittat, sed agam cum fuero Parisiis, id est, ut opinor circa medium Novembrem; quamquam si in ea re tuis literis non moveatur, minus movebitur sermone meo.

Nil aliud occurrit quod scribam, nisi ut gratias agam tantis officiis tantaque benevolentia dignas; quod est omnino impossibile; crede tamen animum mihi esse gratissimum amantissimumque tui, etsi non sum ita blandus ut ad millesimam partem blanditiarum quae sunt in epistolae tuae fine attingere possim. Jamais homme ne recent si grand compliment que vous m'avez fait; mais je ne le renouy point, neantmoins je vous en remercie. Vale. Tuus Thomas Hobbes. St. Germ. Oct. 22. 1646.

The fifth letter refers to the portrait (before mentioned) which Sorbière had got engraved, but which could not be used, because the publisher had reduced the size of the volume from the quarto first intended. As for Gassendi, here and elsewhere so often mentioned, if there was one man who was more than Hobbes to Sorbière, it was he.

V. Domine clarissime, amicissime. Accepi heri literas tuas datas pridie Kal. Nov. atque unâ duo folia, in quibus erratum est nullum, praeterquam quae ipse in margine correxisti levia; consentio tibi ne alia mittas donec totus liber impressus sit. De icone incisâ gratias tibi ago, et ne libro praeponatur facile patior. Epistolam tuam ad Prataeum ferendam cras dabo. Martellus noster Montalbani est, scripsi inde ad me semel, exierat Parisiis circa finem Septembris. Do ad eum literas hodie in quibus id quod de illo ad me scripseras, insero. D^o Gassendo salutem tuo nomine dixi hodie; in morbum a quo paulo ante convalescerat, rursus ceciderat, nunc autem rursus convalescit. Conveniendi Mersennum et salutem tuam ei impertiendi mihi St. Germanum repetenti tempus non est. Faciam proximo tempore; ab initio Decembris usque ad Festum Paschalis futuri sumus Parisiis. Illic si Prataeum tuum convenire potero, amicitiam cum eo facere conabor. Cura ut valeas. Tui amantissimus, Thomas Hobbes. Parisiis die II^o Novemb. 1646.

Though Sorbière had, in fact, sent off a bound copy of the finished work on 29th Jan., 1647, Hobbes had not received it a month later, and writes as follows about the delay of publication:—

VI. Mi Sorberi dilectissime, quo diutius jam quam meum desiderium atque amicitia tua requirebat scribendi ad te officium praetermiserim, causa est tua epistola ultima qua admonabar ne librum meum amplius foliatim expectarem sed totum simul via aliqua quae videretur tibi commodissima. Illud igitur de hebdomade in hebdomadem expectans nolui crebris literis videri flagitare, quod sciebam te quam primum fieri posset sponte facturum. Nunc cum tres menses elapsi sunt ex quo impressio libelli tantuli finiri poterat, cumque amicus tuus Dns Musart, operam suam in mittendis ad te his literis ultro mihi obtulit, praetereunda commoditas ea non videbatur. Itaque te oro ut si quid impressioni oblatum impedimentum sit, certiore me facias. Tuorum denique erga me officiorum cumulo hoc addas ut rescribas, tum ut quando liber ille expectandus sit, tum quod me amare non desisti certo sciam. Mersennus et Gassendus te salutant beneque valent. Te bene valere et cupio et spero. Tui amantissimus, Thomas Hobbes. Parisiis Feb. 28. 1647.

Ad Martellum nostrum scripsi saepius, nihil rescribit, neque ubi sit neque an sit scio.

Next comes the letter (not before published) of greatest interest. Sorbière had written in March, telling of the copy sent in January and of twenty unbound copies to follow as soon as possible by Elzevir consignment; meanwhile enclosing the first sheet, title-page and a portrait "minus bene expressam" (brought down, apparently, to the reduced size of the book), and promising with the later copies some complimentary verses "Brunonis nostri" (who had written the legend for the original portrait); at the same time urging him to let the publisher have his other works, since so many copies of the *De Cive* had already been disposed of. Hobbes's reply is in many ways remarkable. Finding himself designated (by the tuft-hunting Sorbière) on the portrait as "Serenissimo Principi Walliae a studiis praepositus," he makes, in nervous fear of the possible consequences, all the eager suggestions for undoing of the error with which the letter is filled. New light is thrown upon his relations with the prince and the royalist refugees; but most curious of all is the disclosure of his thought thus early of return to England—more than two years earlier than the previous evidence (op. *Hobbes*, p. 65) gave any notion of, and more than four years before the return actually came to pass. It now looks as if he might have been thinking of possible return from the time that his patron, the young Earl of Devonshire, had gone back and submitted himself to the revolutionary government in the previous year (perhaps end of 1645). The point is of no little significance, in connexion with the charges made against him on the publication of *Leviathan* in 1651 and his flight from Paris to London which then ensued. The reference to Mersenne at the end of the letter gives Dr. Tönnies occasion to bring forward, from the outlying (but related) correspondence, the interesting fact that Mersenne himself and Gassendi resented, as Catholics, the publication of their laudatory letters with the *De Cive*, when they had written them only for the publisher. Having acted in the teeth of Mersenne's previously expressed wish, Sorbière had afterwards to make what apology he could. In the letters between Sorbière and Mersenne, there are obvious errors of transcription which Dr. Tönnies does much to clear up. I have little doubt, as he also in the end thinks most likely, that Sorbière is wrongly represented (in transcript) as having got the two letters withdrawn from the edition: they stand in my, as they stand in his, copy of 1647. On the other hand, Hobbes's urgent wish for excision of the portrait must have been gratified, for none is given, while the figured title-page bears the simple 'Auctore, Thom. Hobbes, Malmesburiensi'.

VII. Eruditissimo viro D. Samueli Sorberio Amico sincero suo Thomas Hobbes.

Litteras tuas, vir clarissime, datas Lugduni Batavorum 4^o Nonis Martii, accepi traditas mihi a Mersenno una cum primo folio in quo est imago mea. Quam quidem certo scio a te optima in me voluntate libro praefixam. Veruntamen ita se res habet, temporaque ejusmodi sunt, ut magno emptum vellem ut vel praefixa non esset, vel saltem subscriptio illa Serenissimo Principi Walliae a studiis praepositus sublata exculpata vel abscissa esset. Primo enim, id quod est maximum, qui hodie rerum Angliae potiuntur, causas omnes quibus Stirpem Regiam in invidiam apud plurimos conjiciant, undiquaque sedulo conquirunt atque arripiunt. Cum ergo viderint doctrinae civili adeo ab opinionibus fere omnium hominum abhorrenti praeferrī nomen ejus, jactabunt se inimici magnifice, et otium odiose in eo quod quale Imperii jus expectat arrogaturaeque sibi sit, jam nunc videtur praemonstrare. Quare quicquid inde

mali eveniat, vel evenire posse prætendi potuit ab illis qui in Aula Principis omne peccatum meum interpretationibus et scholiis suis inflammare parati sunt, id omne cum meo summo dedecore ineptiae et vanae gloriae meae imputabitur. Secundo hoc titulo reditus meus in patriam, si me quando redeundi voluntas ceperit, præclusus est, nec cur redire non velim si liceat quomodoque pacatâ Angliâ non video; non sum enim Praeceptor Principis Walliae, nec omnino domesticus (quae causa tertia est quare nollem titulum illum subscribi) sed qualis quilibet eorum qui docent in mensem. Itaque mentitum me esse dicent præ ambitione qui mihi male volunt; sunt ii non pauci. Doleo ergo tot exemplaria jam emissa divenditaque esse. Sed quia id corrigi non potest, demus quaeso operam ut ab iis exemplaribus quae apud Elzevirios reliqua sunt, effigies vel inscriptio, malletm utraque, quamprimum tollatur, idque priusquam ulla in Angliam transmittantur. Hoc ab Elzevirius vel prece vel pretio impetrandum est, pretio si videbitur liber minoris venalem fore sublata imagine vel inscriptione, quod non credo, sed tamen pretio si necesse est. Agam interea hic cum Petito bibliopola ut eam tollat ex suis si quae habuerit (nondum enim allati sunt 21 illi libri quos scribis esse in sarcinis Elzevirianis, neque venit ille cui tradideras librum compactum), et scribam ad bibliopolam quendam Londinensem amicum meum, ut idem fieri curet, si quae istic exemplaria venalia esse contigerit. D. Brunonis benevolentiam gratissime amplector, neque in votis quicquam magis habeo quam ut officio meo officia ejus mereri possim; tamen hoc tempore nullos versus libro praeponi volo quos non ante viderim, tum ne, quod animo et ingenio factum est bono, temporibus fiat mihi non bonum, tum etiam ne aviditas gloriae illius in testimonium ducatur, tanquam etiam indebitum illum titulum cupiverim Praeceptoris Principis. Non est in toto hoc negotio quod meâ culpâ admissum est cui status rerum nostrarum minime cognitus erat. Est quod a te corrigi possit, et propterea quod te oro obsecroque, nimirum id quod dixi ante, ut quamprimum hanc acceperis epistolam, Elzevirium Lugdunensem convenire velis, atque impetrare primum ab eo ut ex illis quae ipse habet exemplaribus effigiem tollat, deinde per eum ut frater ejus qui est Amstelodami, idem faciat, vel si quo alio modo desiderium meum hac in re adimplere possis ut id facere velis. Molesta est haec epistola propter materiam, non faciam ergo ut molesta quoque sit prolixitate. Nihil addo nisi ut valeas, meque adhuc, ac nunc quum maxime opus est, ames. Tui amantissimus Thomas Hobbes. Parisiis 22 Martii 1647. Mersennus et omnes amici nostri permagni dicunt interesse et mei et Principis Walliae ut inscriptio vel potius tota effigies tollatur. Si ut fiat opus sit pecunia non nimis magna, solvam libenter. Iterumque vale.

The eighth letter gives particulars of the illness that nearly carried Hobbes off in the autumn of 1647. The edition of the *De Cive* had gone off in a very few months, and Elzevir was now pressing for another. As to other work with which Hobbes was occupied, and which he had apparently been too much excited about the unlucky inscription of the portrait to refer to in letter 7th, it is to be noted that he speaks in the 8th, and, eighteen months later, in letter 9th, of the *De Corpore* only. There is no word anywhere of *Leviathan*, which, from 1646, was uppermost with him till 1651.

VIII. Eruditissimo praestantissimoque viro Samueli Sorberio Thomas Hobbes S. P. D.

Literas tuas datas quarto die Octobris accepi hebdomade proxime

superiore. In qua quoniam libri mei editionem alteram Elzevirium cogitare scribis, ecce mitto tibi inclusum in hac epistola folium in quo quid mutatum esse vellem annotavi. Nihil autem in eo folio continetur præter errata quaedam prioris impressionis, non enim habeo quicquam quod addam aut demam. Aliam partem Philosophiæ Elementorum nondum paratam ulla habeo; nam circa medium mensem Augusti in febrem incidi gravissimam et continuam, ita ut non modo corpore aeger, sed etiam mente laesus, neque amicos qui me visebant, lecto astantes recognoscere potui. Febris ea in lecto me detinuit per hebdomadas sex, postea abiens erupit in apostemata quæ hebdomadas quatuor alteras lecto me affixerant, postremo sanatis apostematibus supervenit ischiadica eaque maximis cum doloribus. Nunc autem aliquanto me tractat mitius, sinitque ut animum ad amicorum res convertam aliquando. Per tempora morbi priora accepi a te epistolam unam in qua involuta erat altera ad D. du Prat quam (ubi coepi paulum a febri et delirio respirare) dedi cuidam ex amicis meis Parisiis ferendam dandamque tabellario publico. Nisi morbus intervenisset, perfecissem, credo, partem philosophiæ primam quæ est de Corpore; ut autem nunc se res habet, eam partem circa festum Pentecostes expectare poteris; nihil est quo amplius te detineam, cum valetudine, et perge me amare. Datum Germani 27 Novembr. 1647.

IX. Duplici gaudio me affecit (ornatissime Sorberi) amicus tuus dominus Guatelier, qui et te salvum esse nuntiavit, et mihi a te salutem dixit. Ego tibi rescibo imprimis vota mea, ut bene valere laetus vivere et mihi bene velle perseveres; deinde, si tanti est, curas meas, id est studia philosophica quæ tu aliique amici mei et voce flagitant et silentio interdum videntur flagitare.

Quantum cura valetudinis, et erga amicos quos hic habeo præsentis officiorum meorum ratio, sinit, tantum operæ scriptioni impertio, scriptioni inquam, non enim iam quaerendæ sed explicandæ demonstrationæque veritatis labor editionem moratur. Puderet me tantæ tarditatis nisi certus essem rationem ejus in ipso opere satis constitutam esse. Veruntamen non ita longe abesse videor a fine primæ partis (quæ et maxima est et speculationis quam ceteræ partis profundioris), ut non possim (Deo favente) eo pervenire ante exactam hanc æstatem. Interea tabulis æneis figuras quibus utor in demonstrationibus meis, quotidie incidi curo, ut simulac scribere desierim, omnia praelo parata sint. Accipio quandoque literas ab amico nostro Domino Martello, et accepi nuper; degit plerumque, credo, Buldigalæ. Bene valet et me amat. Tu quoque vale (optime Sorberi) et me ama. Tui amantissimus, Thomas Hobbes. Parisiis Junio 14. 1649.

Leaving aside the remaining eight letters (from 1656) as unimportant, it should be added, with reference to Dr. Tönnies's interesting discussion of the circumstances and motives of Hobbes's return in 1651, that the conjecture he (at a distance) hazards as to the beautiful MS. of *Leviathan* in the British Museum—viz., that, as being presented to the young king Charles II., it would hardly contain the bold "Review and Conclusion" of the printed work—is not correct. This epilogue, for all its outspoken independence, duly figures at the end of the MS.; and Clarendon, who describes the presentation-copy as "engrossed in vellum in a marvellous fair hand," must be left to settle with himself (and with the others who took the idea from him) how, if Hobbes wrote "The Review, &c.," in order to curry favour with Cromwell, he could be so rash and so rude as to thrust it into the hands of the exiled prince.

EDITOR.

THE ARISTOTELIAN SOCIETY FOR THE SYSTEMATIC STUDY OF PHILOSOPHY (22, Albermarle Street, W.).—Since last record the proceedings have been as follows: Dec. 16, 1889, Symposium, "Is there Evidence of Design in Nature?" the papers contributed by Mr. S. Alexander, Dr. Gildea, and Mr. G. J. Romanes, F.R.S. Jan. 6, 1890, Mr. R. E. Mitcheson on "Practical Certainty the highest Certainty". Jan. 20, The President on "Universals in Logic". Feb. 8, Mr. D. G. Ritchie on "The Conception of Sovereignty". Feb. 17, Mr. J. S. Mann on "The Distinction between Society and the State". March 8, Mr. G. F. Stout on "Association Controversies". March 17, Symposium, "The Relation of the Fine Arts to one another," the papers contributed by Messrs. B. Bosanquet, E. Wake Cook, and D. G. Ritchie. March 31, Mr. H. W. Blunt on "The Philosophy of Herbert of Cherbury". April 14, The Rev. P. N. Waggett on "Beauty". April 28, Mr. P. Daphne on "Card. Newman's *Grammar of Assent*". May 12, The President on "The Ego". June 2, Symposium, "Is the Distinction of Feeling, Cognition, and Conation valid as an ultimate Distinction of the Mental Functions?" the papers contributed by Professor Bain, Professor Brough, and Mr. G. F. Stout. A discussion followed on every occasion.

Messrs. T. & T. Clark of Edinburgh hope to begin in the autumn the publication of a quarterly *Critical Review of Current Theological and Philosophical Literature*, to be edited by the Rev. Prof. S. D. F. Salmond. The new journal will also take account of other literature so far as bearing on religious and theological questions. The reviewers will be "scholars of recognised ability representing different lines of study and different branches of the Evangelical Church".

Among other series of publications, the University of Pennsylvania has begun a philosophical one under the editorship of Profs. G. S. Fullerton and J. McK. Cattell. No. 1, dated April, has just come to hand, with the title *On Sameness and Identity. A Psychological Study: Being a Contribution to the foundation of a Theory of Knowledge*, by Prof. Fullerton. No. 2 (in preparation) will be *Studies from the Laboratory of Experimental Psychology*, by Prof. Cattell.

Prof. Delboeuf of Liège has just added to his remarkable memoir, *De l'origine des effets curatifs de l'Hypnotisme* (see MIND xiii. 148), another, *De l'étendue de l'action curative de l'Hypnotisme* (Paris, Alcan, pp. 82). In this he gives careful account of the marked improvement of vision which (aided in his observations by two medical colleagues) he has been able to effect through hypnotic suggestion in a patient suffering from severe morbid affection of the retina. The result strongly confirms him in his view that hypnotism, so far from depressing, rather exalts volition: while the life of relation is for the time more or less in abeyance, the 'subject' may recover control of organic processes that in normal circumstances have become automatic. The new memoir displays all the author's well-known scientific force. There is room left here only for bare mention of a somewhat earlier brochure, *Magnétiseurs et Médecins* (Paris, Alcan, pp. 114), in which he defends, with his whole soul, the cause (as he understands it) of intellectual freedom against the French and other medical authorities who are for putting down public representations of hypnotism. In Prof. Delboeuf's view, we owe our present knowledge of hypnotism to the public 'magnétiseurs' more than to all the doctors (who would now appropriate the subject) put together; and while the gain from the knowledge is certain, its possible dangers are easily obviated.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—THE ORIGIN OF MUSIC.

By HERBERT SPENCER.

IN preparing a final edition of my *Essays, Scientific, Political and Speculative*, I have seized the occasion for adding a postscript to the essay on "The Origin and Function of Music". As, when embodied along with other matter in its permanent form, this postscript will be seen by comparatively few, it has seemed desirable to give it a wider diffusion by publishing it separately. The Editor of MIND has kindly yielded to my proposal so to publish it.

An opponent, or partial opponent, of high authority, whose views were published some fourteen years after the above-named essay, must here be answered: I mean Mr. Darwin. Diligent and careful as an observer beyond naturalists in general, and still more beyond those who are untrained in research, his judgment on a question which must be decided by induction is one to be received with great respect. I think, however, examination will show that in this instance Mr. Darwin's observations are inadequate, and his reasonings upon them inconclusive. Swayed by his doctrine of sexual selection, he has leaned towards the

view that music had its origin in the expression of amatory feeling, and has been led to over-estimate such evidence as he thinks favours that view, while ignoring the difficulties in its way, and the large amount of evidence supporting another view. Before considering the special reasons for dissenting from his hypothesis, let us look at the most general reasons.

The interpretation of music which Mr. Darwin gives, agrees with my own in supposing music to be developed from vocal noises; but differs in supposing a particular class of vocal noises to have originated it—the amatory class. I have aimed to show that music has its germs in the sounds which the voice emits under excitement, and eventually gains this or that character according to the kind of excitement; whereas Mr. Darwin argues that music arises from those sounds which the male makes during the excitements of courtship, that they are consciously made to charm the female, and that from the resulting combinations of sounds arises not love-music only but music in general. That certain tones of voice and cadences having some likeness of nature are spontaneously used to express grief, others to express joy, others to express affection, and others to express triumph or martial ardour, is undeniable. According to the view I have set forth, the whole body of these vocal manifestations of emotion form the root of music. According to Mr. Darwin's view, the sounds which are prompted by the amatory feeling only, having originated musical utterance, there are derived from these all the other varieties of musical utterance which aim to express other kinds of feeling. This roundabout derivation has, I think, less probability than the direct derivation.

This antithesis and its implications will perhaps be more clearly understood on looking at the facts under their nervo-muscular aspect. Mr. Darwin recognises the truth of the doctrine with which the above-named essay sets out, that feeling discharges itself in action: saying of the air-breathing vertebrata that—

“When the primeval members of this class were strongly excited and their muscles violently contracted, purposeless sounds would almost certainly have been produced; and these, if they proved in any way serviceable, might readily have been modified or intensified by the preservation of properly adapted variations” (*The Descent of Man*, vol. ii., p. 331).

But though this passage recognises the general relation between feelings and those muscular contractions which cause sounds, it does so inadequately; since it ignores, on

the one hand, those loudest sounds which accompany intense sensations—the shrieks and groans of bodily agony ; while, on the other hand, it ignores those multitudinous sounds not produced “under the excitement of love, rage, and jealousy,” but which accompany ordinary amounts of feelings, various in their kinds. And it is because he does not bear in mind how large a proportion of vocal noises are caused by other excitements, that Mr. Darwin thinks “a strong case can be made out, that the vocal organs were primarily used and perfected in relation to the propagation of the species” (p. 330).

Certainly the animals around us yield but few facts countenancing his view. The cooing of pigeons may, indeed, be named in its support ; and it may be contended that caterwauling furnishes evidence ; though I doubt whether the sounds are made by the male to charm the female. But the howling of dogs has no relation to sexual excitements ; nor has their barking, which is used to express emotion of almost any kind. Pigs grunt sometimes through pleasurable expectation, sometimes during the gratifications of eating, sometimes from a general content while seeking about for food. The bleatings of sheep, again, occur under the promptings of various feelings, usually of no great intensity : social and maternal rather than sexual. The like holds with the lowing of cattle. Nor is it otherwise with poultry. The quacking of ducks indicates general satisfaction, and the screams occasionally vented by a flock of geese seem rather to express a wave of social excitement than anything else. Save after laying an egg, when the sounds have the character of triumph, the cluckings of a hen show content ; and on various occasions cock-crowing apparently implies good spirits only. In all cases an overflow of nervous energy has to find vent ; and while in some cases it leads to wagging of the tail, in others it leads to contraction of the vocal muscles. That this relation holds, not of one kind of feeling, but of many kinds, is a truth which seems to me at variance with the view “that the vocal organs were primarily used and perfected in relation to the propagation of the species”.

The hypothesis that music had its origin in the amatory sounds made by the male to charm the female, has the support of the popular idea that the singing of birds constitutes a kind of courtship—an idea adopted by Mr. Darwin when he says that “the male pours forth his full volume of song, in rivalry with other males, for the sake of captivating the female”. Usually, Mr. Darwin does not accept with-

out criticism and verification, the beliefs he finds current ; but in this case he seems to have done so. Even cursory observation suffices to dissipate this belief, initiated, I suppose, by poets. In preparation for dealing with the matter I have made memoranda concerning various song-birds, dating back to 1883. On the 7th of February of that year I heard a lark singing several times ; and, still more remarkably, during the mild winter of 1884 I saw one soar, and heard it sing, on the 10th January. Yet the lark does not pair till March. Having heard the redbreast near the close of August, 1888, I noted the continuance of its song all through the autumn and winter, up to Christmas eve, Christmas day, the 29th of December, and again on the 18th January, 1889. How common is the singing of the thrush during mild weather in winter, everyone must have observed. The presence of thrushes behind my house has led to the making of notes on this point. The male sang in November, 1889 ; I noted the song again on Christmas eve, again on the 13th January, 1890, and from time to time all through the rest of that month. I heard little of his song in February, which is the pairing season ; and none at all, save a few notes early in the morning, during the period of rearing the young. But now that, in the middle of May, the young, reared in a nest in my garden, have sometime since flown, he has recommenced singing vociferously at intervals throughout the day ; and doubtless, in conformity with what I have observed elsewhere, will go on singing till July. How marked is the direct relation between singing and the conditions which cause high spirits, is perhaps best shown by a fact I noted on the 4th December, 1888, when, the day being not only mild but bright, the copses on Holmwood Common, Dorking, were vocal just as on a spring day, with a chorus of birds of various kinds—robins, thrushes, chaffinches, linnets, and sundry others of which I did not know the names. Ornithological works furnish verifying statements. Wood states that the hedge-sparrow continues “to sing throughout a large portion of the year, and only ceasing during the time of the ordinary moult.” The song of the blackcap, he says, “is hardly suspended throughout the year” ; and of caged birds which sing continuously, save when moulting, he names the grosbeak, the linnet, the goldfinch, and the siskin.

I think these facts show that the popular idea adopted by Mr. Darwin is untenable. What then is the true interpretation ? Simply that like the whistling and hum-

ming of tunes by boys and men, the singing of birds results from overflow of energy—an overflow which in both cases ceases under depressing conditions. The relation between courtship and singing, so far as it can be shown to hold, is not a relation of cause and effect, but a relation of concomitance: the two are simultaneous results of the same cause. Throughout the animal kingdom at large, the commencement of reproduction is associated with an excess of those absorbed materials needful for self-maintenance; and with a consequent ability to devote a part to the maintenance of the species. This constitutional state is one with which there goes a tendency to superfluous expenditure in various forms of action—unusual vivacity of every kind, including vocal vivacity. While we thus see why pairing and singing come to be associated, we also see why there is singing at other times when the feeding and weather are favourable; and why, in some cases, as in those of the thrush and the robin, there is more singing after the breeding season than before or during the breeding season. We are shown, too, why these birds, and especially the thrush, so often sing in the winter: the supply of worms on lawns and in gardens being habitually utilised by both, and thrushes having the further advantage that they are strong enough to break the shells of the hybernating snails: this last ability being connected with the fact that thrushes and blackbirds are the first among the singing birds to build. It remains only to add that the alleged singing of males against one another with the view of charming the females is open to parallel criticisms. How far this competition happens during the pairing season I have not observed, but it certainly happens out of the pairing season. I have several times heard blackbirds singing alternately in June. But the most conspicuous instance is supplied by the redbreasts. These habitually sing against one another during the autumn months: reply and rejoinder being commonly continued for five minutes at a time.

Even did the evidence support the popular view, adopted by Mr. Darwin, that the singing of birds is a kind of courtship—even were there good proof, instead of much disproof, that a bird's song is a developed form of the sexual sounds made by the male to charm the female; the conclusion would, I think, do little towards justifying the belief that human music has had a kindred origin. For, in the first place, the bird-type in general, developed as it is out of the reptilian type, is very remotely related to that

type of the *Vertebrata* which ascends to Man as its highest exemplar; and, in the second place, song-birds belong, with but few exceptions, to the single order of *Insectores*—one order only, of the many orders constituting the class. So that, if the *Vertebrata* at large be represented by a tree, of which Man is the topmost twig, then it is at a considerable distance down the trunk that there diverges the branch from which the bird-type is derived; and the group of singing-birds forms but a terminal sub-division of this branch—lies far out of the ascending line which ends in Man. To give appreciable support to Mr. Darwin's view, we ought to find vocal manifestations of the amatory feeling becoming more pronounced as we ascend along that particular line of inferior *Vertebrata* out of which Man has arisen. Just as we find other traits which pre-figure human traits (instance arms and hands adapted for grasping) becoming more marked as we approach Man; so should we find, becoming more marked, this sexual use of the voice, which is supposed to end in human song. But we do not find this. The South-American monkeys ("the Howlers," as they are sometimes called), which, in chorus, make the woods resound for hours together with their "dreadful concert," appear, according to Rengger, to be prompted by no other desire than that of making a noise. Mr. Darwin admits, too, that this is generally the case with the gibbons: the only exception he is inclined to make being in the case of *Hylobates agilis*, which, on the testimony of Mr. Waterhouse, he says ascends and descends the scale by half-tones.¹ This comparatively musical set of sounds, he thinks, may be used to charm the female; though there is no evidence forthcoming that this is the case. When we remember that in the forms nearest to the human—the chimpanzees and the gorilla—there is nothing which approaches even thus far towards musical utterance, we see that the hypothesis has next to none of that support which ought to be forthcoming. Indeed in his *Descent of Man*, vol. ii., p. 332, Mr. Darwin himself says:—"It is a surprising fact that we have not as yet any good evidence

¹ It is far more probable that the ascents and descents made by this gibbon consisted of indefinitely-slurred tones. To suppose that each was a series of definite semi-tones strains belief to breaking point; considering that among human beings the great majority, even of those who have good ears, are unable to go up or down the chromatic scale without being taught to do so. The achievement is one requiring considerable practice; and that such an achievement should be spontaneous on the part of a monkey is incredible.

that these organs are used by male mammals to charm the females": an admission which amounts to something like a surrender.

Even more marked is the absence of proof when we come to the human race itself—or rather, not absence of proof but presence of disproof. Here, from the *Descriptive Sociology*, where the authorities will be found under the respective heads, I quote a number of testimonies of travellers concerning primitive music: commencing with those referring to the lowest races.

"The songs of the natives [of Australia] . . . are chiefly made on the spur of the moment, and refer to something that has struck the attention at the time." "The Watchandies seeing me much interested in the genus *Eucalyptus* soon composed a song on this subject." The Fuegians are fond of music and generally sing in their boats, doubtless keeping time, as many primitive peoples do. "The principal subject of the songs of the Araucanians is the exploits of their heroes:" when at work their "song was simple, referring mostly to their labour," and was the same "for every occasion, whether the burden of the song be joy or sorrow". The Greenlanders sing of "their exploits in the chase" and "chant the deeds of their ancestors". "The Indians of the Upper Mississippi vocalise an incident, as—'They have brought us a fat dog,':" then the chorus goes on for a minute. Of other North-American Indians we read—"the air which the women sang was pleasing . . . the men first gave out the words, which formed a consummate glorification of themselves". Among the Carriers (of North America) there are professed composers, who "turn their talent to good account on the occasion of a feast, when new airs are in great request". Of the New Zealanders we read:—"The singing of such compositions [laments] resembles cathedral chanting". "Passing events are described by extemporaneous songs, which are preserved when good." "When men worked together appropriate airs were sung." When presenting a meal to travellers, women would chant—"What shall be our food? shell fish and fern-root, that is the root of the earth". Among the Sandwich Islanders "most of the traditions of remarkable events in their history are preserved in songs". When taught reading they could not "recite a lesson without chanting or singing it". Cook found the Tahitians had itinerant musicians who gave narrative chants quite unpremeditated. "A Samoan can hardly put his paddle in the water without striking up some chant." A chief of the Kyans, "Tamawan, jumped up and

while standing burst out into an extempore song, in which Sir James Brooke and myself, and last not least the wonderful steamer, were mentioned with eulogies". In East Africa "the fisherman will accompany his paddle, the porter his trudge, and the housewife her task of rubbing down grain, with song". In singing, the East African "contents himself with improvising a few words without sense or rhyme and repeats them till they nauseate". Among the Dahomans any incident "from the arrival of a stranger to an earthquake" is turned into a song. When rowing, the Coast-negroes sing "either a description of some love intrigue or the praise of some woman celebrated for her beauty". In Loango "the women as they till the field make it echo with their rustic songs". Park says of the Bambarran—"they lightened their labours by songs, one of which was composed extempore; for I was myself the subject of it". "In some parts of Africa nothing is done except to the sound of music." "They are very expert in adapting the subjects of these songs to current events." The Malays "amuse all their leisure hours . . . with the repetition of songs, which are for the most part proverbs illustrated. . . . Some that they rehearse in a kind of recitative at their *bimbangs* or feasts are historical love-tales." A Sumatran maiden will sometimes begin a tender song and be answered by one of the young men. The ballads of the Kamtschadales are "inspired apparently by grief, love, or domestic feeling"; and their music conveys "a sensation of sorrow and vague, unavailing regret". Of their love-songs it is said "the women generally compose them". A Kirghiz "singer sits on one knee and sings in an unnatural tone of voice, his lay being usually of an amorous character". Of the Yakuts we are told "their style of singing is monotonous . . . their songs described the beauty of the landscape in terms which appeared to me exaggerated".

In these statements, which, omitting repetitions, are all which the *Descriptive Sociology* contains relevant to the issue, several striking facts are manifest. Among the lowest races the only musical utterances named are those which refer to the incidents of the moment, and seem prompted by feelings which those incidents produce. The derivation of song or chant from emotional speech in general, thus suggested, is similarly suggested by the habits of many higher races; for they, too, show us that the musically-expressed feelings relevant to the immediate occasion, or to past occasions, are feelings of various kinds: now of simple good spirits and now of joy or triumph—now of surprise, praise,

admiration, and now of sorrow, melancholy, regret. Only among certain of the more advanced races, as the semi-civilised Malays and peoples of Northern Asia, do we read of love-songs; and then, strange to say, these are mentioned as mostly coming, not from men, but from women. Out of all the testimonies there is not one which tells of a love-song spontaneously commenced by a man to charm a woman. Entirely absent among the rudest types and many of the more developed types, amatory musical utterance, where first found, is found under a form opposite to that which Mr. Darwin's hypothesis implies; and we have to seek among civilised peoples before we meet, in serenades and the like, music of the kind which, according to his view, should be the earliest.¹

Even were his view countenanced by the facts, there would remain unexplained the process by which sexually-excited sounds have been evolved into music. In the above-named essay I have indicated the various qualities, relations, and combinations of tones, spontaneously prompted by emotions of all kinds, which exhibit, in undeveloped forms, the traits of recitative and melody. To have reduced his hypothesis to a shape admitting of comparison, Mr. Darwin should have shown that the sounds excited by sexual emotions possess these same traits; and, to have proved that his hypothesis is the more tenable, should have shown that they possess these same traits in a greater degree. But he has not attempted to do this. He has simply suggested that, instead of having its roots in the vocal sounds caused by feelings of all kinds, music has its roots in the vocal sounds caused by the amatory feeling only: giving no reason why the effects of the feelings at large should be ignored, and the effects of one particular feeling alone recognised.

Nineteen years after my essay on "The Origin and Function of Music" was published, Mr. Edmund Gurney criticised it in an article which made its appearance in the *Fortnightly Review* for July 1876. Absorption in more important work prevented me from replying.

¹ After the above paragraphs had been put in print I received from an American anthropologist, the Rev. Owen Dorsey, some essays containing kindred evidence. Of over three dozen songs and chants of the Omaha, Ponka, and other Indians, in some cases given with music and in other cases without, there are but five which have any reference to amatory feeling; and while in these the expression of amatory feeling comes from women, nothing more than derision of them comes from men.

Though, some ten years ago, I thought of defending my views against those of Mr. Darwin and Mr. Gurney, the occurrence of Mr. Darwin's death obliged me to postpone for a time any discussion of his views; and then, the more recent unfortunate death of Mr. Gurney caused a further postponement. I must now, however, say that which seems needful, though there is no longer any possibility of a rejoinder from him.

Some parts of Mr. Gurney's criticism I have already answered by implication; for he adopts the hypothesis that music originated in the vocal utterances prompted by sexual feeling. To the reasons above given for rejecting this hypothesis, I will add here, what I might have added above, that it is at variance with one of the fundamental laws of evolution. All development proceeds from the general to the special. First there appear those traits which a thing has in common with many other things; then those traits which it has in common with a smaller class of things; and so on until there eventually arise those traits which distinguish it from everything else. The genesis which I have described conforms to this fundamental law. It posits the antecedent fact that feeling in general produces muscular contraction in general; and the less general fact that feeling in general produces, among other muscular contractions, those which move the respiratory and vocal apparatus. With these it joins the still less general fact that sounds indicative of feelings vary in sundry respects according to the intensity of the feelings; and then enumerates the still less general facts which show us the kinship between the vocal manifestations of feeling and the characters of vocal music: the implication being that there has gone on a progressive specialisation. But the view which Mr. Gurney adopts from Mr. Darwin is that from the special actions producing the special sounds accompanying sexual excitement, were evolved those various actions producing the various sounds which accompany all other feelings. Vocal expression of a particular emotion came first, and from this proceeded vocal expressions of emotions in general: the order of evolution was reversed.

To deficient knowledge of the laws of evolution are due sundry of Mr. Gurney's objections. He makes a cardinal error in assuming that a more evolved thing is distinguished from less evolved things in respect of *all* the various traits of evolution; whereas, very generally, a higher degree of evolution in some or most respects, is accompanied by an equal or lower degree of evolution in other respects. On the average, increase of locomotive power goes along with

advance of evolution ; and yet numerous mammals are more fleet than man. The stage of development is largely indicated by degree of intelligence ; and yet the more-intelligent parrot is inferior in vision, in speed, and in destructive appliances, to the less-intelligent hawk. The contrast between birds and mammals well illustrates the general truth. A bird's skeleton diverges more widely from the skeleton of the lower vertebrates in respect of heterogeneity than does the skeleton of a mammal ; and the bird has a more developed respiratory system, as well as a higher temperature of blood, and a superior power of locomotion. Nevertheless, many mammals in respect of bulk, in respect of various appliances (especially for prehension), and in respect of intelligence, are more evolved than birds. Thus it is obviously a mistake to assume that whatever is more highly evolved in general character is more highly evolved in every trait.

Of Mr. Gurney's several objections which are based on this mistake here is an example. He says—" Loudness though a frequent is by no means a universal or essential element, either of song or of emotional speech " (p. 107). Under one of its aspects this criticism is self-destructive ; for if, though both relatively loud in most cases, song and emotional speech are both characterised by the occasional use of subdued tones, then this is a further point of kinship between them—a kinship which Mr. Gurney seeks to disprove. Under its other aspect this criticism implies the above described misconception. If in a song, or rather in some part or parts of a song, the trait of loudness is absent, while the other traits of developed emotional utterance are present, it simply illustrates the truth that the traits of a highly-evolved product are frequently not all present together.

A like answer is at hand to the next objection he makes. It runs thus :—

" In the recitative which he [Mr. Spencer] himself considers naturally and historically a step between speech and song, the rapid variation of pitch is impossible, and such recitative is distinguished from the tones even of common speech precisely by being more monotonous " (p. 108).

But Mr. Gurney overlooks the fact that while, in recitative, some traits of developed emotional utterance are not present, two of its traits are present. One is that greater resonance of tone, caused by greater contraction of the vocal chords, which distinguishes it from ordinary speech. The other is the relative elevation of pitch, or divergence

from the medium tones of voice : a trait similarly implying greater strain of certain vocal muscles, resulting from stronger feeling.

Another difficulty raised by Mr. Gurney he would probably not have set down had he been aware that one character of musical utterance which he thinks distinctive, is a character of all phenomena into which motion enters as a factor. He says :—" Now no one can suppose that the sense of rhythm can be derived from emotional speech " (p. 110). Had he referred to the chapter on " The Rhythm of Motion " in *First Principles*, he would have seen that, in common with inorganic actions, all organic actions are completely or partially rhythmical—from appetite and sleep to inspirations and heart-beats ; from the winking of the eyes to the contractions of the intestines ; from the motions of the legs to discharges through the nerves. Having contemplated such facts he would have seen that the rhythmical tendency which is perfectly displayed in musical utterance, is imperfectly displayed in emotional speech. Just as under emotion we see swayings of the body and wringings of the hands, so do we see contractions of the vocal organs which are now stronger and now weaker. Surely it is manifest that the utterances of passion, far from being monotonous, are characterised by rapidly-recurring ascents and descents of tone and by rapidly-recurring emphases : there is rhythm, though it is an irregular rhythm.

Want of knowledge of the principles of evolution has, in another place, led Mr. Gurney to represent as an objection what is in reality a verification. He says :—

" Music is distinguished from emotional speech in that it proceeds not only by fixed degrees in time, but by fixed degrees in the scale. This is a constant quality through all the immense quantity of embryo and developed scale-systems that have been used ; whereas the transitions of pitch which mark emotional affections of voice are, as Helmholtz has pointed out, of a gliding character " (p. 113).

Had Mr. Gurney known that evolution in all cases is from the indefinite to the definite, he would have seen that as a matter of course the gradations of emotional speech must be indefinite in comparison with the gradations of developed music. Progress from the one to the other is in part *constituted* by increasing definiteness in the time-intervals and increasing definiteness in the tone-intervals. Were it otherwise, the hypothesis I have set forth would lack one of its evidences. To his allegation that not only the " developed

scale-systems" but also the "embryo" scale-systems are definite, it may obviously be replied that the mere existence of any scale-system capable of being written down, implies that the earlier stage of the progress has already been passed through. To have risen to a scale-system is to have become definite; and until a scale-system has been reached vocal phrases cannot have been recorded. Moreover had Mr. Gurney remembered that there are many people with musical perceptions so imperfect that when making their merely recognisable, and sometimes hardly recognisable, attempts to whistle or hum melodies, they show how vague are their appreciations of musical intervals, he would have seen reason for doubting his assumption that definite scales were reached all at once. The fact that in what we call bad ears there are all degrees of imperfection, joined with the fact that where the imperfection is not great, practice may remedy it, suffice of themselves to show that definite perceptions of musical intervals were reached by degrees.

Some of Mr. Gurney's objections are strangely insubstantial. Here is an example:—

"The fact is that song, which moreover in our time is but a limited branch of music, is perpetually making conscious efforts; for instance, the most peaceful melody may be a considerable strain to a soprano voice, if sung in a very high register: while speech continues to obey in a natural way the physiological laws of emotion" (p. 117).

That in exaggerating and emphasising the traits of emotional speech, the singer should be led to make "conscious efforts" is surely natural enough. What would Mr. Gurney have said of dancing? He would scarcely have denied that saltatory movements often result spontaneously from excited feeling; and he could hardly have doubted that primitive dancing arose as a systematised form of such movements. Would he have considered the belief that stage-dancing is evolved from these spontaneous movements to be negated by the fact that a stage-dancer's bounds and gyrations are made with "conscious efforts"?

In his elaborate work on *The Power of Sound*, Mr. Gurney, repeating in other forms the objections I have above dealt with, adds to them some others. One of these, which appears at first sight to have much weight, I must not pass by. He thus expresses it:

"Any one may convince himself that not only are the intervals used in emotional speech very large, twelve diatonic tones being quite an ordinary skip, but that he uses extremes of both high and low pitch with his speaking voice, which, if he tries to dwell on them and make them resonant, will be found to lie beyond the compass of his singing voice" (p. 479).

Now the part of my hypothesis which Mr. Gurney here combats is that, as in emotional speech so in song, feeling, by causing muscular contractions, causes divergencies from the middle tones of the voice, which become wider as it increases; and that this fact supports the belief that song is developed from emotional speech. To this Mr. Gurney thinks it a conclusive answer that higher notes are used by the speaking voice than by the singing voice. But if, as his words imply, there is a physical impediment to the production of notes in the one voice as high as those in the other, then my argument is justified if, in either voice, extremes of feeling are shown by extremes of pitch. If, for example, the celebrated *ut de poitrine* with which Tamberlik brought down the house in one of the scenes of William Tell, was recognised as expressing the greatest intensity of martial patriotism, my position is warranted, even though in his speaking voice he could have produced a still higher note.

Of answers to Mr. Gurney's objections the two most effective are suggested by the passage in which he sums up his conclusions. Here are his words.

"It is enough to recall how every consideration tended to the same result; that the oak grew from the acorn; that the musical faculty and pleasure, which have to do with music and nothing else, are the representatives and linear descendants of a faculty and pleasure which were musical and nothing else; and that, however rudely and tentatively applied to speech, Music was a *separate order*" (p. 492).

Thus, then, it is implied that the true germs of music stand towards developed music as the acorn to the oak. Now suppose we ask—How many traits of the oak are to be found in the acorn? Next to none. And then suppose we ask—How many traits of music are to be found in the tones of emotional speech? Very many. Yet while Mr. Gurney thinks that music had its origin in something which might have been as unlike it as the acorn is unlike the oak, he rejects the theory that it had its origin in something as much like it as the cadences of emotional speech; and he does this because there are sundry differences between the characters of speech-cadences and the characters of music. In the one case he tacitly assumes a great unlikeness between germ and product; while in the other case he objects because germ and product are not in all respects similar!

I may end by pointing out how extremely improbable, *a priori*, is Mr. Gurney's conception. He admits, as perforce he must, that emotional speech has various traits in common with recitative and song—relatively greater resonance, rela-

tively greater loudness, more marked divergences from medium tones, the use of the extremes of pitch in signifying the extremes of feeling, and so on. But, denying that the one is derived from the others, he implies that these kindred groups of traits have had independent origins. Two sets of peculiarities in the use of the voice which show various kinships, have nothing to do with one another! I think it merely requires to put the proposition in this shape to see how incredible it is.

Sundry objections to the views contained in the essay on "The Origin and Function of Music," have arisen from misconception of its scope. An endeavour to explain the *origin* of music has been dealt with as though it were a theory of music in its entirety. An hypothesis concerning the rudiments has been rejected because it did not account for everything contained in the developed product. To preclude this misapprehension for the future, and to show how much more is comprehended in a theory of music than I professed to deal with, let me enumerate the several components of musical effect. They may properly be divided into *sensational*, *perceptual*, and *emotional*.

That the sensational pleasure is distinguishable from the other pleasures which music yields, will not be questioned. A sweet sound is agreeable in itself, when heard out of relation to other sounds. Tones of various *timbres*, too, are severally appreciated as having their special beauties. Of further elements in the sensational pleasure have to be named those which result from certain congruities between notes and immediately succeeding notes. This pleasure, like the primary pleasure which fine quality yields, appears to have a purely physical basis. We know that the agreeableness of simultaneous tones depends partly on the relative frequency of recurring correspondences of the vibrations producing them, and partly on the relative infrequency of beats, and we may suspect that there is a kindred cause for the agreeableness of successive tones; since the auditory apparatus which has been at one instant vibrating in a particular manner, will take up certain succeeding vibrations more readily than others. Evidently it is a question of the *degree* of congruity; for the most congruous vibrations, those of the octaves, yield less pleasure when heard in succession than those of which the congruity is not so great. To obtain the greatest pleasure in this and other things, there requires both likeness and difference. Recognition of this fact introduces us to the next element of

sensational pleasure—that due to contrast ; including contrast of pitch, of loudness, and of *timbre*. In this case, as in other cases, the disagreeableness caused by frequent repetition of the same sensation (here literally called “monotony”) results from the exhaustion which any single nervous agent undergoes from perpetual stimulation ; and contrast gives pleasure because it implies action of an agent which has had rest. It follows that much of the sensational pleasure to be obtained from music depends on such adjustments of sounds as bring into play, without conflict, many nervous elements : exercising all and not over-exerting any. We must not overlook a concomitant effect. With the agreeable sensation is joined a faint emotion of an agreeable kind. Beyond the simple definite pleasure yielded by a sweet tone, there is a vague, diffused pleasure. As indicated in the *Principles of Psychology*, §537 each nervous excitation produces reverberation throughout the nervous system at large ; and probably this indefinite emotional pleasure is a consequence. Doubtless some shape is given to it by association. But after observing how much there is in common between the diffused feeling aroused by smelling at a deliciously scented flower and that aroused by listening to a sweet tone, it will, I think, be perceived that the more general cause predominates.

The division between the sensational effects and the perceptive effects is of course indefinite. As above implied, part of the sensational pleasure depends on the relation between each tone and the succeeding tone ; and hence this pleasure gradually merges into that which arises from perceiving the structural connexions between the phrases and between the larger parts of musical compositions. Much of the gratification given by a melody consists in the consciousness of the relations between each group of sounds heard and the groups of sounds held in memory as having just passed, as well as those represented as about to come. In many cases the passage listened to would not be regarded as having any beauty were it not for its remembered connexions with passages in the immediate past and the immediate future. If, for example, from the first movement of Beethoven's Funeral-March sonata the first five notes are detached, they appear to be meaningless ; but if, the movement being known, they are joined with imaginations of the anticipated phrases, they immediately acquire meaning and beauty. Indefinable as are the causes of this perceptive pleasure in many cases, some causes of it are definable. Symmetry is one. A chief element in melodic effect results

from repetitions of phrases which are either identical, or differ only in pitch, or differ only in minor variations: there being in the first case the pleasure derived from perception of complete likeness, and in the other cases the greater pleasure derived from perception of likeness with difference—a perception which is more involved, and therefore exercises a greater number of nervous agents. Next comes, as a source of gratification, the consciousness of pronounced unlikeness or contrast; such as that between passages above the middle tones and passages below, or as that between ascending phrases and descending phrases. And then we rise to larger contrasts; as when, the first theme in a melody having been elaborated, there is introduced another having a certain kinship though in many respects different, after which there is a return to the first theme: a structure which yields more extensive and more complex perceptions of both differences and likenesses. But while perceptual pleasures include much that is of the highest, they also include much that is of the lowest. A certain kind of interest, if not of beauty, is producible by the likenesses and contrasts of musical phrases which are intrinsically meaningless or even ugly. A familiar experience exemplifies this. If a piece of paper is folded and on one side of the crease is drawn an irregular line in ink, which, by closing the paper, is blotted on the opposite side of the crease, there results a figure which, in virtue of its symmetry, has some beauty; no matter how entirely without beauty the two lines themselves may be. Similarly, some interest results from the parallelism of musical phrases, notwithstanding utter lack of interest in the phrases themselves. The kind of interest resulting from such parallelisms, and from many contrasts, irrespective of any intrinsic worth in their components, is that which is most appreciated by the musically-uncultured, and gives popularity to miserable drawing-room ballads and vulgar music-hall songs.

The remaining element of musical effect consists in the idealised rendering of emotion. This, as I have sought to show, is the primitive element, and will ever continue to be the vital element; for if “melody is the soul of music,” then expression is the soul of melody—the soul without which it is mechanical and meaningless, whatever may be the merit of its form. This primitive element may with tolerable clearness be distinguished from the other elements, and may coexist with them in various degrees: in some cases being the predominant element. Anyone who, in analytical mood, listens to such a song as *Robert, toi que j’aime*, cannot, I think, fail to perceive that its effectiveness

depends on the way in which it exalts and intensifies the traits of passionate utterance. No doubt as music develops, the emotional element (which affects structure chiefly through the forms of phrases) is increasingly complicated with, and obscured by, the perceptive element; which both modifies these phrases and unites them into symmetrical and contrasted combinations. But though the groups of notes which emotion prompts admit of elaboration into structures that have additional charms due to artfully-arranged contrasts and repetitions, the essential element is liable to be thus submerged in the non-essential. Only in melodies of high types, such as the *Addio* of Mozart and *Adelaide* of Beethoven, do we see the two requirements simultaneously fulfilled. Musical genius is shown in achieving the decorative beauty without losing the beauty of emotional meaning.

It goes without saying that there must be otherwise accounted for that relatively modern element in musical effect which has now almost outgrown in importance the other elements—I mean harmony. This cannot be affiliated on the natural language of emotion; since, in such language, limited to successive tones, there cannot originate the effects wrought by simultaneous tones. Dependent as harmony is on relations among rates of aerial pulses, its primary basis is purely mechanical; and its secondary basis lies in the compound vibrations which certain combinations of mechanical rhythms cause in the auditory apparatus. The resulting pleasure must, therefore, be due to nervous excitations of kinds which, by their congruity, exalt one another; and thus generate a larger volume of agreeable sensation. A further pleasure of sensational origin which harmony yields is due to contrapuntal effects. Skilful counterpoint has the general character that it does not repeat in immediate succession similar combinations of tones and similar directions of change; and by thus avoiding temporary over-tax of the nervous structures brought into action, keeps them in better condition for subsequent action. Absence of regard for this requirement characterises the music of Gluck, of whom Handel said—"He knows no more counterpoint than my cook"; and it is this disregard which produces its cloying character. Respecting the effects of harmony I will add only that the vague emotional accompaniment to the sensation produced by a single sweet tone, is paralleled by the stronger emotional accompaniment to the more voluminous and complex sensation produced by a fine chord. Clearly this vague emotion forms a large component in the pleasure which harmony gives.

While thus recognising, and indeed emphasising, the fact that of many traits of developed music my hypothesis respecting the origin of music yields no explanation, let me point out that this hypothesis gains a further general support from its conformity to the law of evolution. Progressive integration is seen in the immense contrast between the small combinations of tones constituting a cadence of grief, or anger, or triumph, and the vast combinations of tones, simultaneous and successive, constituting an oratorio. Great advance in coherence becomes manifest when, from the lax unions among the sounds in which feeling spontaneously expresses itself, or even from those few musical phrases which constitute a simple air, we pass to those elaborate compositions in which portions small and large are tied together into extended organic wholes. On comparing the unpremeditated inflexions of the voice in emotional speech, vague in tones and times, with those premeditated ones which the musician arranges for stage or concert-room, in which the divisions of time are exactly measured, the successive intervals precise, and the harmonies adjusted to a nicety, we observe in the last a far higher definiteness. And immense progress in heterogeneity is seen on putting side by side the monotonous chants of savages with the musical compositions familiar to us; each of which is relatively heterogeneous within itself, and the assemblage of which forms an immeasurably heterogeneous aggregate.

Strong support for the theory enunciated in this essay, and defended in the foregoing paragraphs, is furnished by the testimonies of two travellers in Hungary, given in works published in 1878 and 1888 respectively. Here is an extract from the first of the two.

"Music is an instinct with these Hungarian gipsies. They play by ear, and with a marvellous precision, not surpassed by musicians who have been subject to the most careful training. . . . The airs they play are most frequently compositions of their own, and are in character quite peculiar. . . . I heard on this occasion one of the gipsy airs which made an indelible impression on my mind; it seemed to me the thrilling utterance of a people's history. There was the low wail of sorrow, of troubled passionate grief, stirring the heart to restlessness, then the sense of turmoil and defeat; but upon this breaks suddenly a wild burst of exultation, of rapturous joy—a triumph achieved, which hurries you along with it in resistless sympathy. The excitable Hungarians can literally become intoxicated with this music—and no wonder. You cannot reason upon it, or explain it, but its strains compel you to sensations of despair and joy, of exultation and excitement, as though under the influence of some potent charm."—*Round about the Carpathians*, by Andrew F. Crosse, pp. 11, 12.

Still more graphic and startling is the description given by a more recent traveller, E. Gerard.

"Devoid of printed notes, the Tzigane is not forced to divide his attention between a sheet of paper and his instrument, and there is consequently nothing to detract from the utter abandonment with which he absorbs himself in his playing. He seems to be sunk in an inner world of his own; the instrument sobs and moans in his hands, and is pressed tight against his heart as though it had grown and taken root there. This is the true moment of inspiration, to which he rarely gives way, and then only in the privacy of an intimate circle, never before a numerous and unsympathetic audience. Himself spell-bound by the power of the tones he evokes, his head gradually sinking lower and lower over the instrument, the body bent forward in an attitude of rapt attention and his ear seeming to hearken to far off ghostly strains audible to himself alone, the untaught Tzigane achieves a perfection of expression unattainable by mere professional training.

"This power of identification with his music is the real secret of the Tzigane's influence over his audience. Inspired and carried away by his own strains, he must perforce carry his hearers with him as well; and the Hungarian listener throws himself heart and soul into this species of musical intoxication, which to him is the greatest delight on earth. There is a proverb which says, 'The Hungarian only requires a gipsy fiddler and a glass of water in order to make him quite drunk;' and, indeed, intoxication is the only word fittingly to describe the state of exaltation into which I have seen a Hungarian audience thrown by a gipsy band.

"Sometimes, under the combined influence of music and wine, the Tziganes become like creatures possessed; the wild cries and stamps of an equally excited audience only stimulate them to greater exertions. The whole atmosphere seems tossed by billows of passionate harmony; we seem to catch sight of the electric sparks of inspiration flying through the air. It is then that the Tzigane player gives forth everything that is secretly lurking within him—fierce anger, childish wailings, presumptuous exaltation, brooding melancholy, and passionate despair; and at such moments, as a Hungarian writer has said, one could readily believe in his power of drawing down the angels from heaven into hell!

"Listen how another Hungarian has here described the effect of their music:—'How it rushes through the veins like electric fire! How it penetrates straight to the soul! In soft plaintive minor tones the *adagio* opens with a slow rhythmical movement: it is a sighing and longing of unsatisfied aspirations; a craving for undiscovered happiness; the lover's yearning for the object of his affection; the expression of mourning for lost joys, for happy days gone for ever; then abruptly changing to a major key, the tones get faster and more agitated; and from the whirlpool of harmony the melody gradually detaches itself, alternately drowned in the foam of overbreaking waves, to reappear floating on the surface with undulating motion—collecting as it were fresh power for a renewed burst of fury. But quickly as the storm came it is gone again, and the music relapses into the melancholy yearnings of heretofore.'"—*The Land beyond the Forest*, vol. ii., pp. 122-4. Lond. 1888.

After the evidence thus furnished, argument is almost superfluous. The origin of music as the developed language of emotion seems to be no longer an inference but simply a description of the fact.

II.—MENTAL ELABORATION.

By JAMES SULLY.

IN the following pages an attempt is made to present the several constituents in the process of Mental Elaboration in their connexion and interaction. Since mental elaboration shows itself most distinctly in the case of intellectual development, that is to say the formation of cognitions out of the primordial material of sensation, our description of the process will of course have to do primarily and mainly with intellectual elaboration. The analysis here offered professes to supply all that is needed by way of addition to the elementary facts of sensation together with those reactions of attention which are now regarded as modifications of the motor reflexes organically connected with the processes of sensory stimulation. Sensations and such attention-reflexes being assumed, we have to ask what ultimately simple constituent processes are required to enable us to understand the general movement of intellectual elaboration, and further how their constituents are interwoven in the actual concrete tissues of our intellectual life.

These constituent processes appear to me to be reducible to three, *viz.* : Differentiation, Assimilation, and Association. We may conveniently deal with them in the order here indicated.

I. DIFFERENTIATION.

By the term Differentiation the biologist means the gradual emergence or appearance of difference (heterogeneity) between one tissue or one organ and another as the development of an organism proceeds. The process of development, we are told, begins with a relatively simple or homogeneous structure, and the organism takes on more and more distinction and speciality of parts as the process of development advances.¹ Applying this idea to mind we can speak of differentiation as the emergence in consciousness of distinctness or speciality. Thus the infant's colour-sense, though, if a normal one, potentially including all shades of colour-quality, realises as yet but few if any qualitative varieties. The progress of

¹ This may be illustrated by the process of segmentation, or the self-division into segments, which marks the development of the ovum.

sense-development means primarily the substitution of a more and more varied order of sensations, or of a larger and larger number of different impressions; and it will be found that the whole development of intelligence consists in part in the advance of such differentiation.

It is commonly said that attention is in its general nature selectively isolating. When an infant first fixates an object, as a bright light, it virtually differentiates this impression from surrounding objects.¹ In other words, by this process of adjustment a separate and distinctive impression is secured. The peculiar character (quality, strength) of the impression begins to make itself known: definiteness of impression begins to be experienced. In a wide sense then all attention, as selective, isolating, and defining, is a process of differentiation.

[Of course it may be said that a vague differentiation must precede such special isolating adjustment. If the light did not differentially stimulate a particular area of the retina, and so differentially stimulate the mind, there would be no special reflex adjustment. It is evident however that this vague, incomplete differentiation would be of little service for the higher and fully conscious processes. Clear difference only begins to show itself when the process of attention is added, and its effect in defining the peculiar character of that which is attended to is realised.

It follows that the physiological substratum of differentiation may be defined as consisting in unlike functional activity (either of the same or of different nervous elements) together with the isolating process of attention. Thus a distinct impression of a particular variety of colour or pitch of tone has for its nervous condition a particular mode of optical or acoustical nerve-excitation, and the reinforcement of this by the adjustive process of attention.² It must be added that while we may thus define the nervous conditions of two different sensations we cannot hope to find a nervous process answering to the further psychological activity to be spoken of presently, *viz.*, the apprehension of a *relation* of difference.]

Confining ourselves for the present to sensations or representative elements we may trace this process of differentiation or differential definition in various directions. At the beginning of life we may suppose that sensational conscious-

¹ It is important to note that this impression, as indeed every visual impression produced by an object, is really complex. But this fact of complexity need not here be considered.

² Dr. Ward appears to find a further physiological condition of differentiation in that 'restriction' of the nervous current which characterises the action of the special senses. See his article "Psychology," *Encyclop. Brit.*, xx., 46.

ness as a whole is a mass of undistinguished parts. The first broad distinctions to be introduced would be the generic differences between sensations of distinct classes, as a taste, a smell, &c. Along with this, and even prior to it, we may suppose the fundamental difference in feeling, *viz.*, pleasure and pain, to be marked off. The process of differentiation, or psychical segmentation, would reach a more advanced stage when different qualities of the same class began to be mentally separated, as different tastes, different colours, &c. Along with these distinctions of qualitative character, those of intensity, of volume or extensity, and of local character would gradually come to be noted. Thus, for example, different degrees of pressure, different extents of contact, and touches of different local character (at this, that and the other point) would be separately attended to.

This process of differentiation progresses gradually. Just as tastes are first differentiated from other classes of sensations before one taste is differentiated from another, so within the limits of the same special sense the process advances from broad to finer and finer distinctions. Thus we know from the way in which the colour-vocabulary grows in the case both of the individual and of the race that a red is distinguished as such before a particular shade of red, as scarlet or crimson, is distinctively noted.¹

The course taken by this progressive movement of differentiation is modified by the forces which act upon and determine the directions of the attention. Hence it is far from being perfectly regular, and probably varies considerably in the case of man and other animals, as well as in that of different men. Superior strength and vivacity of impression count for much here. This is illustrated in the fact that the brightest and most stimulating colours (red and yellow) are the first to be singled out and recognised. Much depends too on the nature of the particular sensation as bearing on the special interests of the species or individual. Thus the dog first scents and particularises among smells that of his food, his master, &c. ; the horse singles out among colours that answering to wholesome herbage ; and so forth.

[The progress of differentiation is not so simple as is here represented. As already suggested, sensations or presentative elements do not occur apart but in groups or complexes. The animal and the child mark off colour as a constituent of a complex of impressions answering to a particular coloured form, as clover,

¹ This process of differentiation only advances a little way in the case of the organic sensations.

an orange. No doubt, this marking off of complexes involves a certain apprehension of the peculiar character of the several constituents. But such apprehension is very vague. Clear differentiation implies the isolation by attention of the constituent sensation itself. But this follows later. The child sees the apple and the orange some time before it is capable of an abstract attention to its colour. Dr. Ward describes the process of differentiation as the breaking up of a presentative *continuum* into discrete presentations. The term continuum seems so far appropriate here as it indicates the fact that sensation is given at first not as a system of distinct atoms but as a continuous whole, and that distinction is only introduced by the emergence of latent differences. It is evident however that the idea of a continuum as the presentation of difference in a scale of perfectly gradual change in the same direction only partially applies to sensation as a whole. Thus there is a continuous scale of intensity as well as of volume or extensity. As regards quality, it is wanting altogether in the case of different classes of sensation. We cannot pass from tastes to smells by any series of intermediate gradations. Nor even within the limits of one and the same sense does it apply universally. Thus though there is a continuum of colour- and tone-sensations, there is not a continuum of tastes or of smells.¹

Differentiation and Discrimination. We have thus far considered differentiation merely as a process of distinctively marking off or defining particular sensations. Here through special adjustments of attention different sensations come to be distinguished as this, that and the other. Such differentiation or particularisation of sensational character does not necessarily involve any consciousness or mental grasp of a relation of difference between one sensation and another. Still less does it include a clear apprehension of the precise feature, *e.g.*, intensity, quality, in which two sensations differ, or the extent of this difference. Such a clear apprehension or grasp of difference, as distinguished from a singling-out of and attending to different or distinct sensations, is best described as an act of conscious Discrimination.² Differentiation, in the first sense, precedes discrimination in mental development. A and B must be presented as two distinct impressions before we become conscious of the re-

¹ For Dr. Ward's views, see *loc. cit.*, pp. 42, 45.

² Discrimination is often used in the wider sense of Differentiation. But as we require a term to indicate the complete process of 'relating' or apprehending relation, it seems best to select Discrimination for this purpose.

lation A—B.¹ An animal low down in the scale may have differentiated sensations, that is be differentially impressed by this and that stimulus, *e.g.*, thermal or tactile, and yet never rise to a clear consciousness of a relation of difference.² Such an intellectual act or process of discrimination only becomes possible when sensations by repetition acquire a certain steadiness and persistence, and when attention is practised up to the point of a relational or comparative attention; *i.e.*, a simultaneous grasp of two impressions as two distinct, yet related, impressions.

True discrimination develops by gradual stages out of the process of differentiation just described. Thus we may suppose that a strong stimulating sound or light at the moment of its introduction is attended by a vague consciousness of change or transition: and this supplies the germ of discrimination. A child experiencing the change from darkness to light, from cold to heat, could hardly fail to note the change as such. This, however, is still a long way from a clear grasp of a precise relation of difference as defined above. The rapid disappearance of the receding experience under the superior interest of the new one would prevent the infant mind from attending to the two in their relation. A more favourable situation would be the simultaneous presentation of two strong and widely contrasting sensations, as two touches when the child happens to touch two unlike substances with the two hands, or two contrasting colours in juxtaposition.

Law of Change or Relativity. That consciousness involves change of psychical state, or has change as a fundamental condition, is indisputable. A dead level of sensation, without the least introduction of freshness or variation, would be indistinguishable from sleep. This fact of the dependence of mental life on change has been formulated under the head of the Law of Relativity.³

This law of change or variety finds its explanation in part in the very conditions of nervous action. Highly recuperated structures are capable of more vigorous func-

¹ This applies to all intellection as a relational or relating process. The mental apprehension of a relation of difference, likeness, or succession in sensations must be carefully distinguished from the experience of having two unlike, like, or successive impressions. Cp. Lotze, *Metaphysic*, p. 470.

² Cp. Romanes, *Mental Evolution in Animals*, chap. i.

³ See Dr. Bain, *Mental and Moral Science*, p. 88; Hamilton expresses the same principle under the "Law of Variety," see Ward, *loc. cit.*, p. 49.

tion than partially fatigued and exhausted ones. Prolonged stimulation of a nervous structure is attended in certain cases, at least, with a falling-off in the intensity of the sensation.¹ Change of stimulation, on the other hand, by calling into play a fresh organ, ensures greater intensity in the psychical effect. Not only so, the frequent diversion of attention from one impression or region of impressions to another is necessary to its vigorous maintenance. This is strikingly illustrated in what has been called "the acquired incapacity" to attend to constant and unvarying impressions. The miller, after a time, fails to hear the noise of his mill. It is also illustrated in the fact that, when we go on attending to an impression, *e.g.*, one of bright colour, there is a falling-off in its intensity, which is presumably due to the slackening of the effort of attention.

This general truth has a bearing on the intellectual processes and on the feelings. The latter is illustrated in the well-known effects of novelty, contrast, rapid variation of impression in heightening feeling and the enjoyment of life. Here we are concerned with the bearing of change or relativity on the intellectual processes.

In considering this point, we must keep steadily in view the distinction emphasised above between change or difference and the consciousness of difference. The former (apart from any clear consciousness of difference) acts on the intellectual processes through the attention. Thus, when two strongly contrasting sounds succeed one another, the very fact of the change involves a special stimulus to the attention, so that the second sound is better defined. Similarly, when two contrasting colours are simultaneously presented, each serves as a contrast to stimulate attention to the other, and so both impressions become clearer. Is there any further effect? It has been supposed that the consciousness of difference or contrast that arises in this case serves to determine the peculiar quality of each impression. Thus black is seen to be black only when contrasted with white, or in its difference from white; bitter is tasted as such only in contrast to sweet, and so forth. This view seems, however, to overlook the fact that the special qualitative character of a sensation is determined by the particular psychophysical process involved in the sensation. The sensation blue would still be blue, though the eye were

¹ Stumpf points out that this decline in intensity is much more noticeable in certain classes of sensations than in others. It is hardly appreciable at all in the case of sounds. (*Tonpsychologie*, i., 18.)

blind to every other colour. If its blueness were not realised under these circumstances, it would be that the conditions of an isolating attention—variety, freshness of stimulation—were wanting. Change, contrast, do not determine the peculiar quality, intensity, &c., of our sensations. These are absolutely fixed. None the less the juxtaposition of contrasting impressions is one of the most effective ways of bringing home the precise character of each.¹

[The idea that the quality of a sensation is determined by its apprehended relation or relations of difference with other sensations seems to find some support in the well-known fact, that certain classes of sensations are modified by a preceding or simultaneous stimulation of the same organ. Thus the psychophysical process corresponding to one sensation of temperature modifies the effect of a subsequent stimulus. A somewhat similar effect takes place in what is known as the phenomena of colour-contrast, successive and simultaneous, where one colour alters the effect of another colour by throwing it more into contrast with the first. It is probable however that these effects have a purely physiological cause, one nervous process somehow modifying the other. And in any case this modification of quality by contrast is very limited, and can only be viewed as an exceptional phenomenon.]

The apprehension of a particular sensation of a given quality, intensity, &c., is one thing, the apprehension of its relation to other sensations is something additional. At the same time, in actual consciousness at least the one is never found apart from the other. Relations of contrast are so important that they begin to be attended to very soon. And from attending to them we come in time to overlay the simple sensation with a network of relations. Thus a given sensation of cold is apprehended vaguely, at least in its relation to other and customary sensations of temperature. To the eye of an artist each colour tends to be localised in the colour-scale. That is to say, every colour-sensation is instantly overlaid by a whole system of relations of difference. This overlaying of sensations with ideas of relation is illustrated in a striking manner in our common distinctions of intensity—as loud, quiet, bright, dark—where the primary apprehension of intensity becomes modified by ideas of relation.]

¹ The law of relativity has been specially applied to the intensity of sensations by Wundt (*Phys. Psych.* i., 377 ff.), who seeks to formulate a general law of relation ("Gesetz der Beziehung") into which he incorporates the appreciation of intensity as defined by Weber's Law. On the whole question of relativity consult Bain, *Senses and Intellect*, pp. 9 and 321, and Ward, *loc. cit.*, pp. 49, 50. The various forms of the doctrine of relativity are carefully distinguished and examined by Stumpf, *Tonpsychologie*, i., 1-22.

II. ASSIMILATION.

The second of the constituent processes entering into intellectual elaboration is known as Assimilation. This may be defined in its most general meaning as the process by which like sensations or other psychical contents attract one another and tend to combine or coalesce. In its higher form it involves a 'consciousness' or apprehension of a relation of similarity, and thus becomes one of the two leading intellectual functions coordinate with conscious discrimination or the apprehension of difference. As a coming together and a combining of presentative elements assimilation is clearly opposed to differentiation, which in itself tends to a marking-off and isolation of psychical contents. All assimilation is thus a mode of unification or integration.

Psychological Nature of Likeness. When we say that assimilation is the conjoining of like sensations, we mean by likeness any degree of similarity from the lowest degree of imperfect likeness which is just perceptible up to perfect likeness or psychical equality.¹ Two sensations may be appreciably like one another yet far from quite or completely similar, as in the case of two adjacent members of the colour- or tone-scale or two adjacent sounds in the scale of intensity or loudness. The relation of likeness is here regarded as a perfectly simple and fundamental relation, coordinate with dissimilarity or difference. Perfect likeness (of quality or intensity), it may be added, would have to be estimated for practical purposes by indistinguishableness when practised attention is closely directed to the sensations.

The distinction of perfect and imperfect likeness just spoken of has to do with *intensive* differences, or differences in degree of the likeness. In addition to these there are *extensive* differences or differences in the area of the likeness. Thus two colours may resemble one another *totally* in all points, tint, saturation, &c., or only *partially* in some one or more of these constituent features. A good deal of what we ordinarily mean by likeness, more particularly when we ascribe likeness to those complexes which we call 'things,' is of this partial character; and, as just shown, even in the case of so-called simple sensations, likeness resolves itself in many cases into partial likeness.

¹ The term 'identity' is sometimes used to indicate such perfect likeness. But the word is open to the objection that two sensations experienced at different times are not the 'same' in the sense in which a *thing* seen to-day is the same as the thing previously seen.

[According to the Herbartian psychologists the fundamental relations are not difference and similarity but identity or equality and inequality (*Gleichheit* and *Ungleichheit*). According to this view, imperfect likeness as above defined is no simple relation at all, but resolves itself in all cases into partial equality. Thus all assimilation is expressed by the formula $AB - AC$, where A represents the common identical element in two complexes. This view however seems based on speculative hypothesis, and is not in strict accordance with the facts so far as they are known. That imperfect likeness may in many cases be resolved into partial has been conceded above; but this cannot always be done. Physiological analysis does not enable us to say that two adjacent tones in the scale which are certainly like in pitch and more like than those separated by a wider interval have any common ingredient.¹ And, even if it could be made out that in all cases of like sensations there is a common ingredient, it could be urged that the apprehension of this likeness precedes by a considerable interval any power of abstract fixation or isolation of this ingredient. Thus children and even adults apprehend likeness between tones, as a note and its octave, and between two closely related colours, as scarlet and crimson red, without being in the least degree able to identify a common element in them.²

A word may be added on the physiological substratum of psychical similarity. It is said that such a substratum is supplied in the fact of the identity of nervous structure involved in the case of two sensations. This however only applies to the case where similarity is perfect. In the case of imperfect likeness we can hardly assume that the same nervous elements and the same mode of functional activity are involved. It is to be added that, even if we could thus clearly conceive of a nervous correlative of two like psychical elements, this would be far from supplying a physiological counterpart of the consciousness or apprehension of a relation of likeness.]

Automatic Assimilation : Recognition. The simplest form of assimilation is to be found in that process by which a present sensation (or sensation-complex) is re-apprehended or 'recognised' as something peculiar. This assimilation begins very early in life, and may be illustrated in the effect on the infant of recurring, interesting sensations of odour,

¹ It would be still less possible to determine a common element in two tones like though not perfectly like in intensity.

² The Herbartian view is ably criticised by Stumpf. He distinguishes between similarity of simples and of compounds, and argues that in the case of all sensations falling into a scale—tones, colours, temperatures—mere likeness (*i.e.*, imperfect likeness) is involved. (*Tonpsychologie*, i., 111ff.)

sound, &c., as those of the mother. Such assimilation is automatic or 'unconscious' in the sense that there is no distinct recalling of a past sensation, apprehending of the relation of the present sensation to that. It involves, no doubt, a persistence of the previous sensation, and so a germ of what is called retentiveness, a property of mind to be dealt with presently. But the past sensation is not distinctly recalled under a representative form. What takes place is rather the coalescence of the trace or residuum of the past sensation with the present one, by reason of which coalescence this last gains in vividness and in definiteness.

This automatic assimilation by accumulation of traces plays an important part in early mental development. Recurring sensations, *i.e.*, the occurrence of like sensations or sensation-groups, is, indeed, a necessary condition of this development. A child must begin to bring together and class its sensations; and, indeed, by common consent, it begins to do this hastily and even recklessly, classing things which are only partially alike (provided the likeness is striking and interesting), and overlooks differences. All this shows that assimilation is a prerequisite of the growth of even the most rudimentary knowledge.¹

A higher stage is reached when differences are sufficiently attended to to require a special isolating act of attention to the similar ingredient of the complex, as when a child recognises the mother's voice when she is playfully disguising it. This fixing of the attention on a similar feature or features in the midst of diverse elements involves a germ of the higher abstracting attention which is found to play so prominent a part in the later intellectual processes.

Transition to Comparative Assimilation. This last process forms a transition from automatic assimilation to conscious comparative assimilation where the relation of similarity begins to be attended to. Mere recognition, with its complete coalescence of the residua of past sensations with the present, does not imply such apprehension of relation. In the case of likeness, as in that of difference, such apprehension emerges gradually, and only becomes steady and clear with the advance of development.

This conscious apprehension of a relation of likeness may take its rise in one of two ways. The simpler and easier

¹ The effect of successive processes of assimilation or accumulation of traces in giving vividness to sensations was well brought out in Beneke's System of Psychology.

process would be the noting similarity between two simultaneous presentations, as when a child notes the image of its mother's face in a mirror. Such an unusual reduplication of a familiar object would act as a strong stimulus to the attention, and tend to arouse a vague apprehension of a relation of likeness.¹ The second starting-point in the development of such conscious grasp of similarity would be automatic assimilation. In a case where this was checked by the presence of an obstacle, as when a child was puzzled by seeing its mother in a new dress, there would be developed the impulse to separate off the residuum of old impression from the present impression with which it tends to coalesce, and to consciously adjust this last to the first; and this would involve a germ of comparison. Such a process, however, obviously presupposes the advance of another process to be spoken of presently, *viz.*, the distinct recalling or reproduction of past presentative elements under a representative form.²

Relation of Differentiation to Assimilation. The two processes of differentiation and assimilation, though, as we have seen, in a manner opposed one to another, are carried out together, and in close connexion. Since assimilation implies attention to a new sensation, it may be said in every case to involve a measure of differentiation. A child cannot assimilate a taste or touch till it mentally fixates, and so differentiates, this sensation. Further, the exactness of the assimilative process throughout waits on the advance of differentiation. Thus the child begins, as we have seen, by roughly classing different varieties of red as red, long before it more exactly classes a particular variety, as scarlet or plum-colour. Assimilation thus becomes close and exact in the measure in which distinction is introduced.

[We can now see better what is meant by saying that assimilation (likeness) precedes discrimination (difference) in the development of the child. Crude assimilation proceeds in advance of discrimination. Witness the daring of childish classification, as when it calls all males "dada," a rabbit "ba lamb," and so forth. On the other hand, assimilation as a precise process follows, or at least involves discrimination. Tastes, odours, colours, &c., become carefully assimilated or classed in proportion as their several kinds become distinctively apprehended.

¹ Cp. what was said above respecting the first development of conscious discrimination.

² I have dealt with the process of Comparative Assimilation in an article on "Comparison," *MIND*, vol. x., p. 489.

It may be added that while differentiation thus narrows and corrects assimilation, assimilation reacts on differentiation. It is, as we all know, through the interest awakened by the recurrence of partially old and familiar impressions that attention comes to be directed to these, and so the differentiating process to be carried a step further.¹

Finally, it is to be remarked that the higher forms of each, conscious apprehension of difference and of likeness, involve one another. We can only consciously compare two sensation-complexes as like when we distinguish these as two, and so in a manner at least different.² On the other hand, we cannot discriminate things exactly, save when we recognise a common aspect under which we can compare them. To say that two things differ is to say that they differ in respect of a common attribute, as size, colour, local complexion.]

III. ASSOCIATION.

In addition to the two processes, differentiation and assimilation, there is a third process involved in mental elaboration known as Association. By this is meant that process of psychical combination or integration which binds together presentative elements occurring together or in immediate succession. Thus, for example, the several sensations that a child receives together from one and the same object, as those of warmth, softness and smoothness from the mother's breast, become conjoined, tied together or integrated into one complex. Similarly, the successive visual and other impressions received in watching the preparation of its food, or undergoing the operations of dressing, bathing, &c., become conjoined or integrated into a series. It may be added that such integration has for its main condition, in addition to the co-presentation of two sensational elements either together, or in close succession, a mental reaction on these, either in the shape of a simultaneous grasp of them by attention, or of a movement of attention from the one to the other.³

This weaving together of the elements of experience (which is necessary to the very idea of experience as a system of connected parts) begins from the earliest moment,

¹ The effect of automatic assimilation in fixing the attention is well brought out in Herbert's doctrine of Apperception. See Mr. Stout's exposition, *MIND* No. 52.

² That is, at least, differing in their local or temporal character, if not in their qualitative aspect.

³ Wundt, following Herbert, marks off Association from Assimilation under the head "Complication" (*op. cit.* ii. 369).

and runs on *pari passu* with the other processes just dealt with. At the same time, the effect of this process of associative integration only becomes clearly manifest when mental development has reached the point where reproduction of sensations becomes distinct. When we say that a mass of sensation-elements has been integrated, we imply that when next we experience a part of the aggregate this will tend to *recall*, that is, revive under a representative form, the rest of the aggregate. Thus we know that the sight and taste of the infant's food have become integrated when the former manifestly calls up a representation (expectation) of the latter. Psychical binding together, or association, always has reference to a subsequent process of mental reproduction.

And here we reach a point of our exposition at which it becomes necessary to say something more about the psychological nature of retentiveness, and the closely related process of reproduction.

Retentiveness. By Retention as a psychological phenomenon, is meant in general the fact that a sensation tends to persist, or to be followed by some analogous after-effect, when the process of stimulation has ceased. In its simplest form it shows itself in the temporary survival of a sensation in the shape of an 'after-sensation,' when the stimulus ceases to act, as when we retain an after-image of a bright object, as the sun's disc, some seconds after looking away from this. Here we suppose that the process of central excitation after having been occasioned by the peripheral stimulation is capable of being prolonged beyond this, just as a tight string will go on vibrating after the withdrawal of the force which set it in motion.

A much higher degree of retentiveness is shown where a sensation is not simply prolonged, but recalled after a considerable interval,¹ as when a hungry child recalls the sensations of feeding. Here it is evident retentiveness means something different from what it meant in the case of the temporarily prolonged or surviving sensation. The sensation recalled is not supposed to have persisted, at least as a conscious sensation, during the interval. How then are we to conceive of the retention of it during this period? Here two answers at once occur. (1) It has persisted as a true psychical phenomenon, *i.e.*, a sensation; only, having fallen below the threshold of consciousness, it has failed to make its

¹ There is an intermediate case between the after-sensation and the revival after a considerable interval; but we need not consider this here.

existence known. (2) It has not existed at all as a psychical phenomenon, but its 'retention' is referrible exclusively to the persistence of certain changes, changes variously spoken of as physiological 'traces' or 'dispositions' in the nervous centres. In other words, it has been retained 'potentially' in the sense that its nervous conditions or substratum have been rendered permanent.

[The determination of this point is, as is well known, one of the 'crucis' of psychology. That sensations persist as psychical phenomena seems a necessity of thought to those who, like Leibniz and the Herbartians, conceive of the mind as a distinct spiritual substance. On this view, all spiritual activity seems to be indestructible, like the energy of the physical world. According to this way of envisaging the matter, it is not retention but loss or forgetfulness that requires to be accounted for.¹ On the other hand, it has been urged that psychological retentiveness is only a special case of a general biological function; and that all organs preserve either as an ingrained change of structure, or, at least, as a permanently acquired physiological disposition, the traces or residua of their previous activity. On this view, psychological retention is merely the subjective correlative of a physiological process, *viz.*, the cerebral organisation of the traces of past functional activity.²

How far this second view will help us to understand all that is meant by the conscious processes of memory and recollection, cannot be discussed here. It may be as well to point out, however, even in this sketch, that there is no greater difficulty in understanding how a persistent cerebral action or disposition should secure the revival of a sensation than how the original peripherally induced cerebral excitation occasioned the original sensation itself. The transition from physiological conditions to psychological results is just as difficult in the one case as in the other.]

Reproduction. The process of Reproduction is something added to mere retention since it implies the re-appearance 'in consciousness' of the impression, no longer, indeed, as a sensation, but under a new representative form.

This reproduction, as already hinted, appears in a crude or nascent form in automatic assimilation. When a new sensation or sensation-complex is recognised as something

¹ See Hamilton, *Lectures on Metaphysics*, ii., Lect. 80, and Ward, article, "Psychology," p. 47.

² It seems to be a question whether such a physiological disposition involves a prolongation of the functional activity in a weakened or nascent form; see Wundt, *op. cit.* ii., 881, and *cp.* article, "Memory," by W. H. Burnham, in *American Journal of Psychology*, vol. ii., p. 571, &c.

familiar, it is because of the revival and coalescence with the presentation of representative residua of past sensations. Here, however, as pointed out above, the revival is nascent and incomplete. The perfect revival of a presentation involves the absence of a like presentation at the moment. We cannot recall a colour, and see a colour at the same moment, just because the presentation and the corresponding representation irresistibly tend to coalesce.

This perfect form of revival takes place by means of some connected presentation, and hence is known as Associative Revival or Suggestion.¹

Such associative revival begins as soon as sensations by repetition and cumulation of residua have acquired the requisite degree of after-persistence, and association has knit together with sufficient firmness different parts of a sensation-complex. Thus the infant's first observable revivals, *e.g.*, direct suggestions of eating, bathing, &c., illustrate at once the persistence and the weaving together of elements.

This associative revival, like the processes of differentiation and assimilation, appears under an earlier implicit, and a later and more explicit form. In the connexions which enter into our every-day perceptions, we have a number of disparate presentative elements (tactile, visual, &c.) solidified in an inseparable mass. Here though, as we shall see, we can trace the presence of representative elements revived by the presentative, it is impossible to separate them clearly in consciousness, and, in some cases, they tend to blend, in one indistinguishable mass, by what has been called by some psychologists "Inseparable Association".² In the sphere of ideation, on the other hand, imagination and thought, we have a succession or train of distinct representations. And it is in these successions of ideas that we see the action of Association illustrated most plainly.

Without attempting here a complete account of the law of this associative revival, we may just point to its two main conditions.

¹ The Herbartian psychologists distinguish the first incomplete form of reproduction in automatic assimilation or recognition as "Immediate Reproduction," marking it off from Mediate Reproduction, that is to say, reproduction by association and suggestion. It may be added that it is possible to conceive of a third form of revival, *viz.*, spontaneous revival, or the resurgence of a presentative element, apart from suggestion. This is the "freely ascending presentation" of Volkman. See Mr. Whittaker's exposition of Volkman's Psychology, *MIND*, No. 59, p. 387.

² On the nature of Inseparable Association, see Prof. Croom Robertson's article, "Association," *Encyclopædia Britannica*, and Jas. Mill's *Analysis of the Human Mind*, i., 98.

(1) In the first place, then, retention is determined by the intensity and distinctness of the presentative element. Now the fixing of attention tends directly to the increase of each aspect. Retention may thus be said to depend on the closeness of the act of attention and the consequent degree of differentiation. Hence one reason why the organic sensations and those of the lower special senses are not readily revivable. We cannot isolate and differentiate elements of taste as we can analyse sounds, or distinguish simultaneously a number of tactile or visual sensations.¹ It follows that feeling which, in the form of interest, is the great sustainer of the process of attention, is a main promoter of retention. Those presentations are, in general, readily revived which interest or excite the mind by their novelty, their beauty, their moving associations, and so forth.

(2) The other main condition of associative reproduction is the repeated and uniform recurrence of the associated elements as parts of one co-presentation. This second condition, usually dealt with under the head of repetition, will be found to be all-important in the work of associative integration. The child will, no doubt, tend to integrate elements that are only occasionally and accidentally co-presented, as when it looks into empty tea-cups for sugar after finding that dainty in one. But experience is ever correcting this tendency, so as to bring the process of integration into agreement with the recurring juxtapositions and what we call the fixed order of events in the external world.

It remains to say a word on the probable physiological conditions of this revival. Such revival is commonly supposed to involve and to depend upon the re-excitation of the central structures originally excited by a peripheral stimulation.² Such re-excitation is further supposed to be similar in its character to the original excitation, though of a less wide extent than this, since it does not involve the peripheral region of the nervous system.

In the case of that partial or nascent revival which takes place in assimilation we have to conceive of the nervous process somewhat after this manner. A given central element or cluster of elements is re-excited to a functional

¹ Dr. Bain makes retention depend directly on discrimination (*Mental and Moral Science*, i. 96). The exact relation of discrimination to retention is carefully discussed by Stumpf, *Tonpsychologie*, i. 287-9.

² If we suppose retention to involve a persistent state of suppressed or nascent excitation in the central elements involved, we may say that revival depends on a sufficient intensification of this nascent excitation.

activity similar to that of a previous excitation. The residuum of this previous activity or surviving 'physiological disposition' somehow combines with and modifies the new activity; which blending of nervous processes has for its psychical correlative the peculiar mode of consciousness known as recognition, sense of familiarity, or identification.

[Here our physiological psychology seems to be more than usually conjectural. It is not easy to represent any process of overlapping or summation of actions in the same nervous elements which would form a physical basis of the peculiar psychical phenomenon involved in all assimilation. It is to be added however that a mere process of identifying a sensation is an abstract conception never realised. In all assimilation it is evident some points of difference make themselves known as well, and in all assimilative revival there is at least a tendency to reinstate some of the differentiating concomitants of the past sensation. According to this view, then, the nervous process in assimilation is more complex than that just supposed. There are two nervous actions, the new excitation and the re-excitation, involving different elements or functional activities and only overlapping and coalescing at particular points.]

In the case of complete or Associative Revival the physiological process will be somewhat different. Here we suppose that the excitation of a central element (or group of elements), P, answering to the reviving stimulus, occasions by means of special lines of nervous connexion a re-excitation of a second element, Q, more or less remote from P, which answers to the revived psychical content. Thus, following the common view, we conceive that, when the sight of the milk calls up in the child's mind the idea or representation of the taste and of the appropriate movements, the excitation of the child's visual centre transmits itself along certain nervous paths to the centres of taste and movement, producing a re-excitation of these centres.

[This view obviously assumes that the nervous centres of sensation and of ideation (representation) are the same; and physiological opinion appears to be tending towards this conclusion. The paths of connexion by which excitation is thus transmitted along definite lines are supposed to be partly laid down in the original structure of the brain, though largely evolved in connexion with the life-experience of the individual. As to the exact manner in which they arise, we are as yet very much in the dark. Although association is of all the psychical processes that which seems to lend itself best to translation into physio-

logical terms, it cannot be said that the nature of the nervous changes involved has been fully elucidated. The fact that a concurrent stimulation of two points P and Q leads to a subsequently increased propagation of excitation from one point to another can only be fully explained when we understand the whole subject of irradiation of nervous excitation, together with its restriction or inhibition, much better than we do as yet.¹]

Unity of Elaborative Process. We have appeared by the order of our exposition to suggest that these three constituent processes follow one another. But this does not correspond with the facts. All three processes are closely inter-connected. We have already seen this in the case of the two processes differentiation and assimilation. It now remains to show the same thing with respect to each of these and the third process.

Beginning with differentiation it is easy to see that it goes on hand in hand with integration. To begin with, a vague incipient differentiation is involved in integration. Thus, the child must vaguely mark off the sensations warm, soft, smooth, from one another before it can be said to integrate them at all. At the same time this differentiation of constituent sensations is only rudimentary. The child is able to clearly mark off a sensation-complex as such before it differentiates a single sensation. Thus the complex warm, smooth, soft, is definitely attended to as a whole before the comparatively abstract apprehension of warm by itself is reached. This is sufficiently attested by the fact that even after the child can use words, it names things (complexes) some time before it can name single qualities. It is only when experience has advanced a stage, bringing up constituent elements in comparative isolation and in different (partially like) complexes, that the child perfectly differentiates, that is, renders perfectly definite the constituent sensations themselves. Thus the sensation warm becomes definite only when it appears in the different complexes answering to the mother's breast, the bath, &c.

[This view that the child apprehends the complex before it apprehends its constituents may seem paradoxical at first, and to contradict what was said above about the tendency to assimilate things on the ground of partial likeness and by overlooking differences. There is, however, no real contradiction here. What

¹ For an ingenious hypothetical account of the formation of such nervous channels or lines of least resistance see H. Spencer, *Principles of Psychology*, i. 515 ff., 577 ff.; cp. Wundt, *Physiol. Psychologie*, ii. 381 ff.

really happens is this. There is first a vague differentiation of a group in which some constituents as of greatest interest in all cases stand out prominently, *e.g.*, the brightness (lustre) of the eyes in the mother's face-complex. This vague apprehension becomes clearer by repetition of the complex (automatic assimilation) and, still more, by more minute analytic attention to details. Here it is that variation in the arrangement of the constituents and the process of partial or analytic assimilation becomes so important. Thus the child gets a definite sensation, warm, by experiencing it not merely along with the other interesting sensations, soft and smooth, but also in comparative isolation, as when held near the fire, or as an element in another complex, *e.g.*, the bath. All this goes to show how very abstract a supposition is the common one of psychologists that mental elaboration begins by weaving together a number of ready-made elementary sensations.¹]

If now we inquire into the relation of assimilation to association, we find that the two proceed concurrently as organically connected processes or parts of one process.

It follows, to begin with, from what has just been said that automatic assimilation begins with a complex coherent mass rather than with its constituent parts. Thus the child assimilates the sensation warm as an ingredient of a complex before it assimilates it separately.

If now we look at the higher process of association which involves a distinct representation or reproduction of sensations, we find that automatic assimilation forms an essential factor in the whole operation. Thus, before the child can, upon seeing the milk, recall the taste, &c., it must assimilate the visual or presentative element, *viz.*, the white colour, &c. Assimilation is here the initial step of the whole process.

[This may be symbolised thus—

$$\begin{array}{c} V \\ | \\ (v) t \dots \end{array}$$

where V stands for the presentative (visual) element, (v) for the residuum of past similar impressions which is excited by and at once coalesces with V, and *t* . . . for the distinct representative elements, taste, &c.

According to some, assimilation is not a distinct process, but only a part of the process of integration or association. This point can only be properly discussed in connexion with a full

¹ Cp. Ward, *loc. cit.*, p. 45. A rather subtle point connected with the relation of differentiation to association is whether two like sensations can become differentiated by taking on unlike associative adjuncts. This cannot well be discussed in this bare sketch of the elaborative process.

exposition of the processes of ideation. Here it must suffice to point out that, while always found together, they serve to mark off two distinct directions of the elaborative process. Assimilation, even in its lower automatic form, answers to the depth of the combining process, integration to the breadth or extent of it. And these two do not necessarily proceed *pari passu*. As we all know, where a number of partially like things are assimilated on the ground of a common constituent, the assimilative or classing process tends to exclude the revival of the several integrated concomitants. A familiar form, a familiar name, is associated with a rich variety of impressions answering to the various circumstances in which we have seen or met with it, &c. But, just because these are not uniform but variable concomitants, they neutralise one another's tendency to reappear in consciousness.]

It may be added that retentiveness, which is found to be the fundamental condition of associative reproduction, must be assumed to be co-operating throughout the process of elaboration. It has been pointed out by more than one psychologist that the simplest act of conscious discrimination—*e.g.*, warm from a preceding cold—involves, at least, a momentary persistence of the antecedent sensation. Assimilation, as has been remarked, not only involves retention, but is the first and simplest manifestation of it under the form of a revived sensation.

The importance of retentiveness as a condition of elaboration may be seen in another way. Each of its constituent processes advances gradually, the new and higher stage presupposing and depending upon the lower stages. Thus each successive differentiation renders possible a higher degree of differentiation. For example, by distinguishing the colour blue, the child takes a step in the direction of distinguishing particular varieties of blue.¹ This progressive improvement of psychical activity has for its main condition retentiveness. The common maxims of education, "Exercise strengthens faculty," "Practice makes perfect," illustrate this fundamental fact of our psychical life, *viz.*, that the results of our several actions persist, rendering a renewal of these actions easier and also contributing to the development of higher forms of activity.

¹ This is well illustrated by Dr. Ward, *loc. cit.*, p. 46, whose remarks should be read as supplementary to what Dr. Bain says on the dependence of retention on discrimination, *Compendium*, p. 96.

III.—VOLKMANN'S PSYCHOLOGY. (II.)¹

By THOMAS WHITTAKER.

HAVING dealt synthetically with the simpler mental processes as deduced from "laws of interaction" applied to the elements of mind, Volkmann goes on, in his second volume, to deal analytically with actual mind in its complexity. First he seeks to resolve into their elements the mental "forms" of Time and Space, and the Perceptions that appear under those forms. Next, the psychological differentiation of the Ego from the Non-ego is traced out. Lastly, the phases of developed mind known as Thought, Feeling, Desire and Will, are marked off from one another and successively analysed from the points of view already gained.

The psychological problem of Time and Space, as stated by Volkmann, is, How are the time- and space-forms developed out of presentations? The succession of presentations, he premises in dealing with time, does not itself constitute the presentation of succession. Primarily, he finds, the activity that brings succession to consciousness is the presenting of a sensation in its contrast to a reproduction. The reproduction "strives against" the present sensation, and this striving is accompanied by desire. Through the feelings of "no more" and "not yet," we become conscious of time. The source of the strength both of these feelings and of the consciousness of time involved in them is the desire for a present satisfaction of sense not given in the mere reproduction.

As in successive presentation there is originally no presentation of succession, so in the mere consciousness of the present as such there is no presentation of duration. We only come to know that the present persists by its striving against an increasing tension of the future. The feeling of "still there" is the feeling of duration.

Different "time-series" stand at first out of relation to one another; but from the "full" the "empty" time-series is formed by interaction of different series; and this last is produced beyond all limits so as to become what is called "the idea of eternity," which is in reality the *attempt*

¹ Concluded from No. 59.

to represent in an intuition the "before-and-after" that constitutes time. At length, by hypostasising the form that we find everywhere in the perceptions of the "external" as of the "internal" sense, we get "time-in-itself" or "objective time". The time-series, which was at first a time, then *my* time, becomes at last *Time*. The time-series, originally discrete, by the assumption of the objective character becomes a continuum.

Coexistence of presentations does not immediately give the presentation of coexistence, any more than succession of presentations gives the presentation of succession. Presentations, indeed, in order to be presented "beside one another," must be actually not "beside one another" (*neben einander*) but "in one another" (*in einander*) as "simultaneous states of the same simple being". In spatial presentation, different presentations are united in the same act, yet distinguished. To be spatially presented, presentations must be terms of a series; for only by development of the form of a series can they be prevented from falling into the unity of a total impression. In the second place, they must mutually reproduce one another to the full degree of clearness. This condition is satisfied when the terms of the series can reverse their order; when the same series can be brought to flow off in the two opposite directions. Of space as of time we become conscious only through an emotion; but whereas in the case of time the emotion is fixed in its whole intensity in one presentation and therefore becomes desire, in the case of space it broadens out over both of two serially connected presentations and remains mere feeling. Toned sensations predispose to the assumption of the time-form, untuned sensations to the assumption of the space-form.

The elements from which our presentation of tactile space originates are sensations of pressure and muscular sensations. The pressure-sense is capable of developing the space-presentation independently by means of its own series; but the concurrence of the two kinds of series makes tactile space what it actually is. The tactile limbs (as well as the eye) owe the greatest part of their space-developments to their mobility, which makes possible varied combinations of their specific sensations with simultaneous muscular sensations. Where pressure-sensations and muscular sensations concur, the latter, as a rule, take the lead.

Discussing the conception of the "local sign," Volkmann contends that this ought to be regarded as consisting simply in the "peculiar colouring, conditioned by the particularity

of the place of excitation, of the content of sensation itself". When it is viewed in this way, the difficulties of the conception vanish. Of course the local sign is not to be thought of as a direct feeling of locality existing beside the special *quale* of the sensation.

Various abstract suppositions having been made as to the conditions of vision (a single motionless eye viewing a monochromatic motionless surface, for example, being first supposed), and the factors present in normal vision restored one by one, it is found that space-series can be formed visually only by the combination of colour-sensations with the muscular sensations derived from the movements of the eye. The space-form of the muscular sensations is carried over to the colour-sensations, as in the case of tactile space it is carried over to the pressure-sensations. In visual space, however, it more unconditionally takes the lead. For the qualities of the colour-sense, under the actual conditions of their reception, are not uniformly graduated like those of the pressure-sense; hence, no space-presentation could be formed by series of colour-sensations alone.

"The space-form is in no way the prerogative of a special class of sensations, but develops itself uniformly wherever the conditions of its development are offered;" these conditions being the existence of "series" and their reversibility. The musical scale, for example, is presented under the form of space—not, indeed, the space of the external world, but a space of its own. Assumption of the space-form is especially favoured when muscular sensations co-operate—as, for example, in the case of one who sings the scale up and down. The reason why series of notes so seldom raise themselves to the space-form is that "the space-schema of the muscular, pressure and visual sensations is somatically pre-formed, while the tone-scale has to be constructed by an act of comparison".

The surface is a "tissue of space-series". It involves consciousness of a second dimension, because to the consciousness of the two opposite directions of co-existence within the single space-series, that of the co-existence of the series among one another is added. The surface rises to the figure through our becoming conscious of the limit. Presentation of the limit is due to arrest in the passage of the eye from one colour to another. When there is a difference of colours on a surface, the eye learns to move along the boundary so as to avoid the monotony of the "ground" and maintain itself at the maximum of excitation by the contrast. The field of view having been divided up, deter-

mination in the direction of limitation suffices to raise the surface into the figure.

When, along with one of the presentations constituting a surface, another is presented in an order of co-existence that coincides with no order in the surface, the starting-point is given for the presentation of space of three dimensions, and for that "closed-off interweaving of surfaces among one another" which constitutes Body. Elements out of which these presentations can arise are the muscular sensations of the hand, and, to a less extent, of the other freely-moving tactile limbs. Let us imagine a person with vision, but without sense of touch, and with a muscular sense confined to the eye. Would such a person form any idea of the third dimension? Of the factors that seem at first to offer themselves for the development of the idea of distance, only two—the movements of accommodation of the single eye, and of convergence in binocular vision—need serious consideration; and these, when examined, are found not to make the presentation of distance possible in the absence of everything but visual experience. In combined sight and touch, accordingly, the muscular sensations of the hand take the lead in developing the presentation of the third dimension.

"Empty space-series" are formed by mutual suppression of particular qualities and local tones, with preservation only of consciousness of the number and degrees of fusion of the terms of the series. They are first formed on our own body, as is shown by the names of measures, such as foot, span, &c. "Our own body is for the representing of empty space what our own life is for the representing of empty time." Space-presentation having the number and sequence of its terms somatically pre-formed, our empty space-series generally rise to greater precision than our empty time-series. When our empty space-series have received the proper degree of mobility, almost every positing of a final term serves only as a point of attachment for the evolution of a new series; every limit is only a demand to go further. Thus, the empty space-series is freed from every determinate limit. "Infinite space" can, of course, as little be positively represented as infinite time, and its negative significance is less than that of infinite time. In trying to represent to ourselves an infinite space-series, we think of it as one that it would take an infinite time to measure. The order of co-existence that our sensations take upon them independently of us is an order that we seem to find given, and accordingly place where we place the content of our sensations, *viz.*, in the external world; hence the notion of

"objective space". From empty objective space the filled spaces occupied by external things seem to us to proceed by limitation and separation. It thus appears as the *prius* of objects. "Out of all relations to this space stand the spaces in which we order our conceptions or figure our imaginations; and since nothing prevents us from constructing these spaces also beyond all determinate limits, it is a paradoxical but true thought that there is more than one infinite space." Strictly speaking, every sense constructs its own space. That the spaces of different senses flow together into the space of the external world has its ground merely in the simultaneity of the constructions. The relative "emptiness" of the muscular sensation in itself and previous to that collision of qualities by which "empty" series are formed, makes it specially adapted to develop the presentation of the line.

For the discussion of the measurement of space and the estimation of magnitude, it is premised—(1) that the magnitude of our space-series cannot be compared with the magnitude of the "object," the contrast of "real and apparent magnitude" only meaning contrast of the constant magnitude of the space-series of touch with the changing magnitudes of visual space-series; and (2) that our estimate of the magnitude of space-series becomes very uncertain in the absence of comparison with the known magnitudes of sensation-complexes that are present. Several propositions are then arrived at as to the psychological causes of the variation of our judgments on the magnitude of different "space-series" according to the number of their sensational elements, the intensity of particular sensations, &c.

Space of Time (*Zeitraum*), Motion, Number and Intuition are next discussed. The presentation of a "space of time" is found to consist in "the spatial apprehension of a time-series". In the presentation of motion, on the other hand, the spatial is apprehended under the form of time. As duration is known only in contrast to sequence, so rest is known only in contrast to motion. The presentation of number is an abstract product of an operation common to the forms of space and time. The conditions of its origin are—(1) that a series should be given of which the terms are qualitatively like or are taken as qualitatively like, (2) the emergence and holding fast of the presentation of the single term, (3) the measuring-off of the series by means of the term that is held fast, (4) the comprehension of the measurements as a

whole. Number is not to be supposed to arise from the repetition of a unity already known as a unity ; for unity is itself a number, and comes to consciousness along with the other numbers, or possibly even later. To measure our series, indeed, we need an undecomposed part ; but unity of presentation is not, to begin with, the presentation of unity. A clear presentation of unity is arrived at for the most part only by comparison of such already measured magnitudes as differ by the quantity of a single measurement. Thus if the other numbers are multipliers, unity is as a rule a difference. Those sensation-complexes of which the elements have taken on the form of time or space may be called Intuitions. Number is not an intuition. The result of the analysis of time and space so far may be thus formulated : Out of sensations intuitions are evolved in consequence of the properties immanent in the sensations.

The "localisation" of sensations in the bodily organism, notwithstanding its apparent primitiveness, is a secondary phenomenon. A sensation at first unlocalised receives its space-determination from the reproductive activity that brings it into union with a presentation that has already found its place in the "space-scheme" of pressure-sensations by which we represent the body. Primitively all is vague. By degrees temperature-sensations, organic sensations, &c., become definitely ordered in relation with the interwoven series of sensations composing the surface of the body, and are then said to be "localised".

While localisation goes on in the region of the more strongly toned sensations, "projection," or the assignment of sensations to the external world, goes on simultaneously in the region of toneless sensations. Of projection there are three conditions : (1) a sensation that enters into the intuition of the body, (2) a second sensation, which is not localised, (3) a space-series that inserts itself between the two. Usually these three functions are taken upon them by three classes of sensations : (1) a pressure-sensation marks out the place on the body, (2) a contact-sensation indicates the external thing, and (3) the muscular sense constructs the space-series between the two. Primarily and immediately only sensations of touch are projected. The sense of sight supports itself in its projections on the sense of touch.

Projection does not of itself suffice to complete the presentation of the External Thing as *thing*. For this the conditions primarily required are—projection and consciousness of dependence in having the sensation. Neither of these is sufficient by itself. If a localised sensation is to

become a position on the body, the space-schema in which it is received must be thought of as something that comes to meet the changing sensation and outlasts it; and if the projection of the sensation of hardness is to become the presentation of a projected hard thing, the consciousness of a permanent ground of sensation must add itself at the place of projection to the temporary sensation of contact. On the other hand, the mere feeling of being conditioned by something else is not sufficient of itself to develop the presentation of the external thing. What makes the external thing an external thing is the union of both moments, that is, the constant appearance of the feeling of dependence at a constant place of external space, or "the determination of the *other* by the *outer*". This determination is wanting to the presentation of our own body. Hence if the body becomes a "thing" it does not become an "external thing". For the complete development of the presentation of the external thing two other conditions are to be added: (1) that not single sensations of touch but "total contact-images, *i.e.*, contact intuitions" are projected; (2) that visual and other sensations are projected simultaneously with sensations of touch. The heterogeneous sensations we project appear before us in constant groupings, and changes of time-association with other presentations isolate the groups. For fusion of projected sensations into a total presentation, not only likeness of position in time but also likeness of position in space is necessary. Thus there is no contradiction in one of two simultaneous sensations being projected and the other localised. The sense of touch is the only one that seems to mark out the thing as such immediately on the side of its reality and not of an adhering quality. If we signify by the term Perception the highest form that intuition assumes by its projection, we may briefly formulate the result so far thus: Certain sensations develop into intuitions and certain intuitions into perceptions.

An important part of what is called Illusion consists in wrong localisation or projection. Of illusions in general there are two classes—*viz.*, "illusions of internal perception" and "illusions of sense". In illusions of the first class we assign to a presentation (which, as a particular phenomenon, is no illusion) a predicate from among psychical modes of occurrence which does not belong to it. An illusion of the second class consists in this, that in the particular case localisations and projections are made which either cannot maintain themselves at all, or cannot maintain themselves in the

manner in which they are made, against the harmonising mass of other localisations and projections. "The possibility of illusions of the second kind rests on an illusion of the first kind ; for the fault in localisation and projection presupposes localisation and projection in general ; but that a presentation should appear to us not as a presentation, but as something else, is an illusion of internal perception. Let this substitution be once ratified, however, then only the particular case can be regarded as an illusion of sense where either an unpermitted or a false use is made of the conceded right of externalising a presentation." Illusions of sense are divided into "hallucinations" and "illusions" proper. In hallucinations, mere reproductions are taken for sensations, and as such localised or projected, when they ought not to be localised or projected at all. In illusions properly so called, either localisation and projection are interchanged, or within the sphere of one of them a wrong position is assigned to the particular presentation. There are cases on the borderland of illusion and hallucination where a sensation is the starting-point, but a reproduction called up by this sensation is projected. Of these cases there are two classes : (1) where the reproduction merely alters the content of the sensation, which is itself rightly projected ; (2) where the sensation merely serves to confer its own "liveliness" on the reproduction, which is falsely projected. Illusions of the first of these kinds are scarcely "illusions of sense" at all, but ought rather to be classed as errors of internal perception. Those of the second kind are essentially hallucinations. That transformation of reproduction into sensation in which the essence of hallucination consists, may be brought about in two ways : either (1) the reproduction annexes to itself the degree of liveliness of a sensation already present, or (2) it sets going by its intensity a somatic excitation, which then acts as a centripetal stimulus, and associates sensation with reproduction. Hallucinations of the second class constitute so-called "visions".

The presentation of the Ego, to which Volkmann now proceeds, he views as developing itself in three stages. In its first stage of development it is the presentation of "the sentient and desiring body," to which are opposed as Non-ego external things. The Ego of the second stage is "the consciousness of the representing and desiring interior". The bearer of consciousness is for us at this stage internal because organic sensations are associated with the feelings by which it responds to presentations. The specific Non-ego of this

stage is the presentation "as image of the external thing". To the feeling and desiring interior is opposed "the, in itself, indifferent presentation". The "interior" is related to the images of things as the body to things; from them come its feelings, to them its desires are directed. The body as opposed to the interior is now external—an antagonism that reaches its full degree of sharpness in the next period. The third stage of development is that of "the Ego as thinking and willing subject," to which is opposed as object "the thought". Representation has now developed into conception and desire into will. There is interaction of thought with "the fixed kernel of our interior". Of this interaction (as of the interaction of the former stage) we become conscious through emotions, which, though less toned, are still not without some resonance of organic feelings. Thought appears as a product of the spontaneity of the subject, and the body, at this stage, is altogether expelled from the presentation of the Ego. At all three stages the development of ideas of the "foreign Ego" runs parallel in consciousness with that of our own Ego.

The Ego is nothing but a "psychical phenomenon". Its "presentation" is not the representation of a being or of a combination of beings. It is the soul that is a being; and the soul is pre-supposed metaphysically, not arrived at by psychological analysis. Nor has the "Ego-presentation" any determinate content. It is merely the becoming conscious of an interaction within an immeasurable presentation-complex; and the presentation that has and knows all others is itself quite indeterminate, being known only as "a point indicated by a manifold presentative activity". From this indeterminate Ego is to be distinguished "the empirical Ego" of each person, which is not absolutely indeterminate, but gives a special "total impression" depending on temperament, history, &c. In different persons, for example, the empirical Ego has predominately the character of one or other of the three stages of development of the Ego-presentation. For these are not periods of a single history in the sense that one period ends where another begins, but to a certain extent independent histories which, after successively starting, proceed for a time parallel with one another. Accordingly, all sorts of combinations of different degrees of advance of the different histories may be imagined in different persons, and even in different "presentation-circles" of the same person. To the empirical Ego "the time-series of life," or its total impression as called up in the present, may almost be taken as equivalent.

"Internal perception" involves three things: (1) the becoming conscious of a presentation; (2) the becoming conscious of its presentative activity; (3) the becoming conscious of the belonging of this presentative activity to the Ego. The real occurrence behind the appearance of the Ego's knowledge of the presentation is the soul's becoming conscious of an interaction between one of its presentations and the most ramified of its presentation-masses. "As the Ego first arrived at development by differentiation from the Non-ego, internal perception now re-integrates this diremption by setting the Non-ego in continuity with the Ego." It is through internal perception that the Ego at last becomes the central point of the whole life of presentation. The Ego, accordingly, may now be defined as "the subject of internal perception".

While internal perception takes place in "the subjective sphere of presentation" and ends with the judgment, 'I have A,' the process of "Apperception," which has now to be considered, takes place in "the objective sphere of presentation" and ends with the judgment, 'A is Z'. Apperception is nothing but the fusion of a new, isolated presentation-mass with an old one superior to it in extent and internal equilibrium; if the two are not conformable to begin with, then after transformation of one by the other. Internal perception and apperception are thus only two sides of the same process, *viz.*, "reaction of the old upon the new". One of the two may, nevertheless, in special circumstances, entirely give place to the other. In deep thought that follows only the content of presentations, internal perception disappears; in strong feeling, while knowledge of the feeling—that is to say, its internal perception—remains, "apperception" of it by the maxims that are applicable disappears. When the new is quite conformable to the old, it is apperceived without internal perception; when it is uncomformable it is internally perceived without apperception. In psychological observation, apperception is internally perceived and internal perception apperceived.

To be "attentive" to something is to hold back a presentation, or a series or mass of presentations, from "sinking". Attention is "sensible" when its condition is the duration of a somatic stimulus, "intellectual" when its condition is an activity of psychical "aids". Voluntary attention is not to be added as a third kind. "Attention" is a state, which may or may not be brought on voluntarily by the voluntary bringing on of its conditions, but, once brought on, is either sensible or intellectual. Of intellectual attention the most

eminent case is when the giving of an "aid" is due to an apperceiving presentation-mass. All that excites and develops in us apperceiving masses finds attention. The relation of a presentation to the ruling presentation-masses of the Ego being described as the "interest" which the subject brings to the presentation, it may be said tautologically that "we bring attention to all that interests us".

"Self-consciousness" may be defined as "internal perception within the Ego". From the wide circuit of presentations that is the basis of our consciousness of the Ego, two different parts or modifications take up a position outside and opposite one another, like subject and object in internal perception; both presentation-masses then return into the totality of the Ego-presentation, and are known as parts of the same continuum. The Ego "first differentiates itself," as it is itself differentiated from the Non-ego, "then re-integrates itself out of this differentiation". What divides itself phenomenally is not, of course, "the pure Ego"; nor is the identity that takes away the division anything but continuity of two presentation-masses in the same totality. "The pure Ego is only the abstract formula for that process by which the Ego-phenomenon completes itself."

Abnormalities in the functions of the Ego are of three kinds: (1) Disturbances in the interaction of the Ego with other presentations, or Suspension of internal perception; (2) Disturbances within the presentation-circles of the Ego, or Abolition of self-consciousness; (3) Development of an abnormal Ego, and persistent suppression of the normal Ego by the abnormal. Insanity is not reached till the abnormality assumes to itself the form of the Ego, and continuity with past life appears broken. However much it may be preceded and accompanied by illusions and hallucinations, these do not constitute it. It is, literally, "alienation," or becoming another person.

The psychological theory of the Ego having been set forth, we are in a position to deal with mind as thinking, feeling, desiring and willing. "Thought" Volkmann defines as "that uniting and dividing of presentations which has its ground solely in the content of the presentations themselves". Thinking presupposes the formation of the concept from the presentation. The origin of the concept, accordingly, is the first point to determine.

The Concept is the presentation or presentation-form set free from everything extraneous that adheres to it. To the presentation adhere its fusions with other presentations; to

the presentation-form its becoming conscious in and along with the particular qualities of the terms between which it is a relation. So far as the presentation is concerned, we know that no fusion, once completed, can be annihilated, but that each particular fusion can be paralysed in its activity by the activity of all the rest. So far as the presentation-form is concerned, the theory of time and space taught us that consciousness of the same form may be involved in the consciousness of quite different presentations, and by the comprehension of these in the same total impression may be to a certain extent isolated. The process of setting free the consciousness of a presentation or a form, *i.e.*, relation (*Verhältniss*), from all extraneous relations (*Beziehungen*) by the reciprocal arrest of extraneous relations is called Abstraction. All concepts arise by abstraction.

Concepts are divided into conceptions of objects, of attributes, and of relations. Conceptions of objects are divided into individual and generic concepts; conceptions of relations, into form-concepts of intuition and of judgment. The preliminary stage of the individual concept is the presentation of the individual object; of the generic concept, the "generic image" (*Gemeinbild*). The object-conception isolates total presentations; the attribute-conception, partial presentations. For the obtaining of form-conceptions, presentations must be fused in series, and must be at the same time distinguishable. The condition of our obtaining them is an emotion, by which we become conscious of the relation of the presentations. The forms of intuition are Time and Space; the forms of judgment, Identity and Dependence with their opposites. Generic images of the former are "empty series"; of the latter there are none but artificially constructed generic images. To the original conceptions arising by abstraction we must attach the "derivative concepts," which are artificially constructed from conceptions of objects and attributes by means of the form-conceptions.

To carry the conception beyond the generic image to the stage of the logical concept—which abstraction by itself is powerless to do—there are three auxiliary means, *viz.*, internal perception, apperception, and "designation of the concept by the word". Internal perception sets the generic image free from reference to the external thing that was perceived, and apperception sets it free from the space-form. Internal perception cannot transform the fluctuating complex of presentations in which arrest and fusion work against each other, that stands for the concept, into a "rounded-off, resting presentation". What it does is to

place the whole complex before the Ego, and thus to give a certain "inwardness" to the presentation-mass, to confer upon it a certain tone. The influence of apperception goes further. When once a number of concepts in a measure fixed have been developed, the more general concepts act apperceptively on the special concepts and analyse their manifoldness into its qualitative moments. A concept that comes under the point of view of a more general concept gets one of its determinations fixed, and whatever fails to get fixed by a point of view sinks back. Apperceptions of this kind give the first point of application for definition, which is, "the place-determination of a given concept in a given system of concepts". Of yet greater importance is the designation of the concept by the word. "Internal perception holds the concept fast and transfers it to the internal world; apperception analyses it and in a measure transforms the spatial manifoldness of its parts into the logical manifoldness of its marks; but the designation by a sound fixes the concept by means of a reflex from the external world and under the unity of this reflex comprehends the internal manifoldness as a unity."

The concept in the logical sense is an ideal to which the conceptions we actually form may approximate but which they can never reach. For the logical concept is a "completed, resting, determinately limited presentation," whereas psychological concepts are "imperfect fusions of the homogeneous, imperfectly isolated from fusions with the heterogeneous". Concepts are specially adapted to become apperceiving presentation-masses. In fact almost all our apperception of perceptions depends on the concepts we have acquired.

In judging we become conscious of the positing or annulling of one presentation by another. The Judgment accordingly pre-supposes (1) a relatively fixed presentation lying at the root of the process, (2) a presentation raised into consciousness by the former and subsequently fusing with it, (3) a checking of the fusion of the two, such as is necessary in order to raise the fusion as such into the object of consciousness. These pre-suppositions give respectively the subject, the predicate and the copula. According as the ground of the positing of the predicate is in the content of the subject or outside of it, the judgment is, for the logician, analytical or synthetical. For the psychologist, the difference between the two kinds of judgment points to the contrast between immediate and mediate reproduction. "Every analytical judgment is the becoming conscious of an apper-

ception, as conversely every apperception of which we become conscious assumes the form of an analytical judgment." The synthetical judgment rests on "accidental fusions". Apperception is here absent. The synthetical judgment rises into the "judgment of dependence" only when to the consciousness of fusion consciousness of its necessity is added.

Suspension of judgment is accompanied by a "tension"; conviction, or the resolution of this tension, by a pleasure. As the concept is fixed in the word, so the judgment is preserved in the sentence. The psychological judgment falls as far short of the logical judgment as the psychological falls short of the logical concept. "Psychologically a prejudice is as much a judgment as knowledge, and knowledge is nothing but the becoming conscious of the necessity of the fusion of two presentations."

The consciousness of necessity in judging arises when we find ourselves dependent in our determinate judgments on something other than the accidental relations of presentations. That on which we find ourselves dependent can only be either (1) the content of the presentations independently of the fact of psychical occurrence, or (2) the mode of happening of the presentations so far as it is withdrawn from our influence. The first condition gives psychological necessity to the analytic, the second to the synthetic judgment. From consciousness of the necessity of the former proceeds the conception of "identity"; from consciousness of the necessity of the latter, the conception of "dependence". Of identity we become conscious in the analytical judgment in so far as we become conscious of the apperception that constructs the judgment. The case of the synthetical judgment is more complicated. Reproductions, for example, appear as dependent on the subject; but this dependence does not give the consciousness of necessity. The dependence from which we get the consciousness of the necessity of the synthetical judgment is the dependence of sensations on something external. Complexes of sensations, *i.e.*, intuitions or perceptions, have only two modes of being given in which they appear thus dependent: (1) the synthesis of partial presentations in the total presentation of the external thing, (2) the succession of sensations in the time-series of changes in the external world. From the first kind of dependence we get the conception of Substance, from the second the conception of Cause. The conceptions of substance and cause belong to the class of artificial concepts

described as educed from given concepts by the application of a form-conception.

The necessity so far considered is merely "subjective". But the characteristic of knowledge in the logical sense is "objective," as distinguished from merely subjective necessity. Without some consideration of "knowledge" in this sense we do not arrive at an explanation of "thought". For "knowledge," defined as that kind of judgment in which subject and predicate are connected with objective necessity, or in which their connexion is determined solely by qualitative relations, is identical with the "thinking judgment" (*denkendes Urtheil*). Knowledge being thus defined, there is evidently no difficulty about the raising of the analytical judgment into knowledge. The analytical judgment gives knowledge when both the presentation-masses that enter into its apperception have developed into pure concepts and interact only as such. Between concepts as such no other relations are possible than those of thought. The completed apperception of one by the other involves the knowledge of their qualitative identity. "Synthetic knowledge," on the other hand, seems at first to involve the contradiction that two presentations with divergent qualities are necessarily connected, "that is to say, that two presentations which are not one are yet to be counted as one". The solution of the difficulty is that in synthetic knowledge either one presentation is only a changed apprehension of the other, or both are only different apprehensions of the same third thing. "In the transformation of the *aliud* into the *idem per aliud* lies the logical justification of synthetic knowledge." Synthetic knowledge is possible only in philosophy (which has to do with "metaphysical" and "æsthetical" synthetic judgments) and in mathematics.

The Syllogism (in a generalised sense) is, psychologically, a mediately affirmed judgment that has bound up with it the consciousness of mediation. The need of syllogising arises from the collision of concepts. No less than the psychological concept and judgment, the psychological syllogism falls short of the logical. The rules of the syllogism, and of logic generally, Volkmann here points out, constitute an art for the regulation of thought, not an account of natural psychological processes as they go on when left to themselves.

The "degree of perfection of thought" consists in the degree of its approach to the ideal fixed by logic. The perfection of the judgment consists in its correctness

(*Richtigkeit*), the determination of which properly falls outside psychology. If, nevertheless, we take up the question of the correctness, rightness or validity of the judgment, we may draw the distinction between "subjective" and "objective" correctness. A judgment is "subjectively correct," when it is in accordance with the whole of our permanent presentation-relations, and not merely with a temporary state of preponderance of particular presentations and their casual relations. It is "objectively correct" when the right presentations are placed in the right relation. That relation is right which makes the judgment into knowledge. The presentation, if a sensation, is right when it is rightly projected or localised; if a reproduction, when it is ordered in accordance with sensation; if a concept, when it is assigned to its right place in a fixed "concept-tissue". This concept-tissue, the place in which determines the objective correctness of the concept, is, in daily life, that which has been fixed by language; in speculation, "the logical schema of science". Different from the rightness or correctness is the "holding for true" (*Fürwahrhalten*) of a judgment. We hold that judgment for true of which the predicate maintains itself unmoved beside its subject, in spite of all attempts at arrest by other presentations that likewise offer themselves as predicates. If no predicate obtains this absolute preference, but one of them retains permanently the relatively highest degree of clearness, we call the judgment that unites this predicate with the subject "probable". A judgment that is held for true though passed before the possession of the right concept or outside the right relation of concepts, is called—in a wide sense of the term—a "prejudice". Prejudices are not necessarily either objectively incorrect or subjectively correct.

Feeling (or Emotion in the general sense) arises when we become conscious of the presentative activity as distinguished from the content of a presentation. We become conscious of the presentative activity through its pressing upon a resistance, which pushes it back upon itself and thereby makes it its own presented content. Feeling is primarily the becoming conscious of the degree of tension of the activity thus resisted. In its contrast to presentation, and as excluding consciousness of a determinate *quale*, feeling it is said to be "subjective"; in its contrast to desire, and as excluding consciousness of a determinate direction towards an external effect, it is said to be "passive."

Since the tension through which feeling arises is the state of a presentative activity either pressed down by its arrest or freeing itself from it, feeling is in respect of its tone either "non-pleasure" or pleasure. Pleasurable presupposes non-pleasurable feeling, and is therefore a secondary phenomenon; but it is at the same time something positive, not a mere negation. The presupposed non-pleasure need not immediately precede the pleasure in time, nor need it have won for itself a distinct consciousness. There are "mixed feelings" in the sense that the different partial presentations of the same total presentation may be accompanied by feelings of opposite emotional tone, but not in the sense that there may be opposite emotional tones in the same presentation. While the particular feeling taken singly is always pure, the total feeling is nearly always mixed.

Besides its "tone," there are to be distinguished in feeling the properties of "intensity," "rhythm" and "content". The strength or intensity of a feeling is the degree of intensity of its tension. The rhythm of feeling arises from the circumstance that neither does the intensity of feelings diminish uniformly nor their tone maintain itself the same. Feelings may be divided, as regards their rhythm, into—(1) those that end with the tone with which they began, (2) those that pass into the opposite tone, (3) those that vibrate during their whole course between the two opposite tones. Total impressions of simultaneous feelings may be divided into—(1) mixed feelings that end as pure feelings, (2) pure feelings that become troubled in their course, (3) mixed feelings that periodically become pure or approximate to purity. Feeling receives its "content" from the presentation whose presentative activity is its "bearer".

The explanation previously given of "the tone of sensation" has its ground in the explanation of emotional tone. For sensation springs from the flowing together of elementary states, while feeling is borne by formed presentations. Now the formed presentations that are the bearers of feeling are present to consciousness. The bearers of the tone of sensation, on the other hand, are for ever withdrawn from separate consciousness. Thus the composition of feeling is more accessible than the composition of the tone of sensation, while it offers an analogy with it.

Of great importance for psychological theory is the "somatic resonance" of feelings. This "reflex sensation," which has its physical basis in the vegetative system while

its effects extend beyond, is in inverse proportion to the instinctive movement that accompanies the feeling.

Particular feelings come to be localised in particular groups of presentations. Sometimes they get wrongly localised. By attention to their determinate character they may be detached from particular groups of presentations and even from presentations in general. Determinate feelings may be "projected" into external things.

There is no interaction of feelings as such. The "interaction of feelings" is a mere appearance, at the root of which lies interaction of the presentations that are the bearers of the feelings. Thus simultaneous feelings arrest one another only when the presentation-circles in which they have their seat arrest one another, and fuse only when the presentation-masses fuse in which they dwell. The reproduction of a feeling is, strictly speaking, always a new production.

Different persons manifest persistently predominant emotional tones of different kinds, depending on a permanent attitude of the Ego to new presentations. According as the Ego habitually feels itself furthered or hindered by these, the person is said to be "light-minded" or "heavy-minded". When the Ego habitually rejects new impressions there is "equanimity". Those natures in which a certain mean state of light or heavy feeling is kept persistently and as with an effort, so that all momentary tones and particular feelings end, as it were, in this permanent "ground-tone," Volkmann calls "affective" (*gemüthlich*). Those, on the other hand, in which the ground-tone of feeling easily gives place to momentary tones and particular feelings he calls "genial".

Some feelings are limited both in their origin and development to one and the same definite circle of presentations, while others, either in their origin or during their course, spread indefinitely from one presentation-circle to another. Feelings, accordingly, may be classified into "fixed" and "vague" feelings. In the case of fixed feelings, the presentations can be definitely assigned from whose interaction the feeling proceeds; in the case of vague feelings they cannot. Among fixed feelings those take the first place in which the complete ground of the feeling is given in the qualitative relations of the presentations of a homogeneous presentation-circle. Fixed feelings of this kind raise the claim to universal validity and necessity in the sense that in them there is not merely a necessary connexion between the occasioning presentations and the feeling, but that from

among the occasioning presentations themselves all casual relations are excluded. From this first class of fixed feelings is to be distinguished a second class in which the ground of the feeling is partly, and a third in which it is wholly, in fusions of presentations as distinguished from their purely qualitative relations. Fixed feelings of the last class approximate to vague feelings; for when mediate reproduction is once excited, the excitation propagates itself in ever-widening circles and at last indefinitely. To the first class of fixed feelings belong the æsthetic and ethical feelings; in artistic and religious feelings the influence of fusions is already to a certain extent active; in most of the "nature-feelings" the transition to vague feeling begins to appear. The vague feelings may be classified according to their degree of differentiation from the "common feeling".

By æsthetic feeling is to be understood "that fixed feeling in which the qualitative relation of a determinate combination of presentations reflects itself in its purity". Æsthetic feeling has for its positive condition clear presentations; for its negative condition the power to close off the circle of these from the presentation-circles of daily life. It is thus "unconditional," while the pleasure in the recognition of a teleological relation, for example, is "conditional". An æsthetic emotion more easily arises in contemplation of the unfamiliar, because this is more easily viewed by itself apart from its relations to anything else. With play æsthetic feeling has this in common, that it begins where the needs of life end.

Art is not always and from the beginning Fine Art; in other words, its aim is not originally to call up æsthetic feeling. The work of art is primarily an individual thing that claims to signify a universal. To the end of giving this significance to its work, art employs three means: first, it isolates its object from the real world; secondly, it abstracts from everything empirically determinate that signifies nothing in relation to the universal it aims at portraying; thirdly, it confers determination by raising beyond what is empirically given those features that have significance for its aim. As art advances, it becomes more and more æsthetic. In so far as it aims at its end by means of æsthetic form, it becomes fine art.

Ethical feeling, viewed as "satisfaction or dissatisfaction in the relations of the images of the will," is a kind of æsthetic feeling, distinguished from others by the peculiarity of its objective basis. The difference of the ethical feeling from

the other æsthetic feelings lies in the immediate relation of the presentations in which it is based to the actual will of the subject. For the will of the subject is in accordance with the ethical judgments that have arrived at recognition, or it is not; and this relation is itself an ethical one and pleases or displeases. According to the nature of the relation is the nature of the pleasure or displeasure. Historically the ethical feeling originates in social relations.

Religious feeling is related to ethical feeling as art-feeling to æsthetic feeling. It originates not in ethical feeling but in a feeling that may be called one of "dependence" on an external power. Afterwards it becomes moralised. In its highest perfection it consists in "the feeling of absolute dependence on a physical and ethical absolute".

Definitions of the various forms of "self-feeling" and sympathy (together with its opposite) are followed by an analysis of the "nature-feeling" briefly referred to above. The kind of nature-feeling Volkmann chiefly has in view is the emotion excited by landscape, which he finds to consist in a harmonious combination of fixed (æsthetic) and vague (organic) feelings.

From Feeling, or Emotion in the general sense (*das Gefühl*), Volkmann distinguishes Emotion in a more special sense (*der Affect*) as being, instead of a resting state of the feelings (*Gemüthsruhe*), a movement of feeling (*Gemüthsbewegung*). Emotions, in this sense, owe their origin to a certain "surprise" of old presentations by new ones; their continuance to the fixing influence of a somatic reaction. They may be divided into "depressing" and "exciting" emotions. In the former (illustrated by Fear) the newly entering presentation presses the whole consciousness below the normal state of equilibrium; in the latter (illustrated by Anger) the new presentation divides the old presentations into two groups, one of which it raises and attracts while it drives the other back. Depressing emotions are always painful; exciting emotions, at a certain stage pleasurable. Depressing emotions destroy apperception and lower self-feeling; exciting emotions intensify apperception and raise self-feeling. An emotion has three periods: (1) entrance of the new presentation and disturbance of equilibrium, (2) culmination of the movement, (3) gradual restoration of equilibrium. It is in the second period that the somatic reaction plays its chief part.

When the degree of clearness of a presentation remains constant while the degree of tension of its presentative

activity increases, there is Desire. Desire is thus a form of consciousness involving at once presentation and feeling. It is the consciousness of a "conation" or "striving" directed to the bringing on or against the persistence of a heightened degree of liveliness, clearness or completeness of presentation. From the mere effort of an arrested presentation to rise, it is distinguished as being accompanied by consciousness. To feeling it is related, as an activity directed towards something beyond is to an activity turned back upon itself.

If we understand by "desire in the narrower sense" the becoming conscious of the effort of the presentative activity to raise its presentation, and by "aversion" the effort against the resisting contrary, then every desire in the wider sense is at once desire and aversion. Desire is simplest when the three moments of which it is composed are assigned to three different presentations. This is the case when the presentation that forms the object of the desire is raised by another fused with it, and hindered in its ascent by an opposite presentation. The first of these moments is the desired presentation; the second is the impulse (*Trieb*) occasioning the desire; while the third is the opposition, the function of which only in the rarest cases falls to a single presentation. "Satisfaction" is that pleasure which ends the desire by transformation of the conation into actual presentative activity. The "impulse" is not to be placed in the expected pleasure of satisfaction. Strictly speaking, the desire does not seek satisfaction as such, but finds it when the tension is resolved.

In desire, as in feeling, may be distinguished "content," "intensity" and "rhythm". The content of the desire is the desired presentation. There are no absolutely vague desires in the sense in which there are "vague feelings". That most easily comes to be desired which attracts attention. The intensity of desire depends on the intensity of the impulse and on the degree of fixation of the opposition. Under the head of "fixation of the opposition" comes the effect of prohibitions, dangers, &c., in intensifying desire. There is rhythm in desire—(1) in so far as between the limits of desire and satisfaction the tones and degrees of feeling change, and (2) in so far as there is alternation between rest and movement in the whole psychical life.

A desire is reproduced when the presentations are reproduced from whose interaction it proceeded. As little can there be direct reproduction of desire as of feeling; but desire is more accessible to reproduction through its objec-

tive nucleus than mere feeling. Dispositions to desires, so far as they are grounded in established relations of presentations—which are acquired especially by habit—are called Inclinations. When they have reached a specially high degree they are called Propensions.

"Feeling is passive, directionless, blind; desire is active and directed to an end that it knows, or at least thinks it knows." Feeling becomes desire as soon as "fixations" mix themselves with the presentation-circle in which it is based. Thus, for example, "pity becomes benevolence; liking, love; hope, longing".

The ordinary classification of desires into "lower, sensual" and "higher, intellectual" is based on the contrast between sensation and reproduction, applied now to the desired presentation, now to the impulse. Among "desires of sense" two classes may be definitely distinguished, *viz.*, "the pathological desires of sensation, and the—in the wider sense—æsthetic desires of perception; of which the former are composed in all their moments of strongly toned and therefore localised sensations, as hunger and thirst, while the latter have their seat in less toned, clear sensations and therefore have play in the region of projection, as desires upon perception of moving objects or of regular shapes".

The form most frequently taken by Impulse is that of a "series". The complication of the form of impulse proceeds to the interweaving of series, and reaches its highest stage when the desired presentation forms the central point of a tissue. "On centralised interweavings of series rests everything that we are accustomed to call Love."

Desires are less mutually compatible than presentations; for even heterogeneous desires arrest one another, and every arrest of desires proceeds to obscuration. Simultaneous desires can only continue to co-exist when they coincide in the same desired object. Coincidence can take place in three ways: for either the desires may be directed to different partial presentations of the same total presentation or they may act together in the same particular presentation, and in the latter case they may act either in the same or in opposite directions. "In the conflict which the third case involves, the two desires take up alternately the parts of 'desire' and 'aversion,' and since every progress in the one direction has for its consequence a heightening of the conation in the opposite direction, the interesting paradox results that simultaneous opposite desires intensify one another."

In immediate connexion with the theory of the impulse,

Volkman continues his account of Instinct—now defined as “that organic pre-formation in consequence of which a determinate impulse transforms itself in a constant manner into a determinate bodily movement without the intermediation of a clearly-appearing presentation”. The impulse is not in itself a desire, since the direction to a determinate presentation is absent; but it becomes a desire when a more or less clear presentation, by the reproductions it occasions, attracts it to itself. The instinctive impulse is always “obscure,” because it is always composed of organic sensations, but the desire in which it expresses itself is not obscure. In instinct the whole appearance of pursuit of ends is to be set “to the account of the somatic pre-formation”.

Volition is desire that has arrived at the prevision of its satisfaction. This prevision, or judgment as to the attainableness of the desire in a determinate way, is the result of the carrying over of the desire from the end to the means and consequent checking of the original desire. Like desire, volition contains in itself no “causality of its satisfaction,” for many volitions remain unsatisfied; but it knows of such a causality, and on the ground of this knowledge expects its satisfaction.

All Volition includes Thought as part of itself. For thought is necessary in order to “transform the *post hoc* of the time-series into the *propter hoc* of the causal series,” and thereby give the security of attaining what is desired. In relation to the thought involved, three periods may be distinguished in the history of every volition, *viz.*, “reflexion,” “deliberation” and “resolution”. As compared with desire, volition has a specially intimate relation to the Ego, from which it has the appearance of proceeding.

The volition resolved on may remain suspended. The suspended will is called “purpose”; the realised will, “action”. Action, again, may be either “external” or “internal”.

The completed volition, whether it has remained a purpose or has proceeded to action, becomes the object of a judgment, which has the “pathological eudæmonistic” or “æsthetic ethical” character, according as it connects with the volition a feeling of pleasure or displeasure, taking its origin from a material relation of the willed object to the total will of the subject or from a purely formal relation of the particular volition to another volition. Both kinds of judgment are extended from judgments on particular volitions to judgments on whole classes of volitions, and, in

becoming themselves objects of a deeply ramified will, rise to the rank of "practical principles" or "maxims"—of "happiness," or of "morality" as the case may be. Ethical judgments upon volition usually appear later than eudæmonistic judgments, because they pre-suppose a more abstract apprehension of the volition; but they are more rapidly transformed into imperatives.

From the apparent arbitrariness of the resultant volition in cases of conflict among volitions and maxims, arises the problem of Free-will. Volkmann's solution of the problem is that only in appearance does the resultant volition take its origin from "an Ego hovering over the conflicting volitions". Ego and "end-volition" are alike phenomena resulting from the interaction of presentations; and they result from the interaction of the same presentations. There is thus no free-will in the sense of an emancipation of the will from law. Freedom, in the sense in which it can be admitted, consists in determination of the will by a law recognised by the person willing. It is "autonomy"—not "arbitrary choice"—as opposed at once to "heteronomy" and to "anarchy". It is not freedom of the "will," but of the person. The law with which, for the person to be free, the will has to be brought into conformity, is the "practical maxim". Consciousness of freedom is consciousness of the determination of the willing Ego by the knowing Ego.

"Moral" as distinguished from merely "psychological" freedom consists in determination of the will exclusively by ethical as distinguished from eudæmonistic maxims. The sum of a person's ethical maxims is his "practical insight," and this, so far as it appears under the imperative form, may be called Reason. To be morally free, accordingly, is to have the will determined by reason. What reason is to the completed volition, Conscience is to the purpose.

Psychological freedom as a permanent property of the subject in relation to a whole class of volitions is called a "trait of character"; extended over the whole of volition, Character. "That character is moral of which the supreme principle is conscience, or, in other words, the moral character is the realisation of reason in an enduring whole of volition." The opposite of freedom as a permanent property of the subject is Passion. "The essence of passion consists in this, that with respect to a class of volitions the maxim is indeed heard, but the will is decided against the maxim". Passion (*Leidenschaft*) is distinguished from Emotion (*Affect*) as a permanent disposition from a transitory state. Repetition of

the same "emotion" may give origin to a "passion" as the feeling becomes sharpened into desire.

With these discussions of Freedom, Reason, Character and Passion, Volkmann prepares the psychological ground for the theory of legal and moral responsibility which he develops in some concluding pages. This takes us beyond the region of pure psychology, and the exposition may here close. The only remark that need be added is an expression of the writer's sense of the inadequacy of this attempt to give an idea of the value of Volkmann's treatise. When reduced to a bare outline, the book inevitably loses what constitutes its most distinctive feature for the student, namely, the exhaustiveness of its detailed treatment. Some idea may, however, have been given of its systematic completeness of arrangement and of its breadth of general view.

IV.—BERKELEY AS A MORAL PHILOSOPHER.

By HUGH W. ORANGE.

IN his polemic against Abstract Ideas and Atheism, Bishop Berkeley presents the curious with a critical problem of a certain historical importance. He claims for the doctrines laid down in *The Principles of Human Knowledge*, that they will "abridge the labour of study, and make human sciences far more clear, compendious, and attainable than they were before" (§ 134). This claim he proceeds at some length to substantiate, in the provinces of Natural Philosophy and Mathematics, deferring the consideration of the benefits which would accrue to Moral Philosophy, by the banishment of Abstract Ideas, for a "more particular disquisition" (§ 144). The promise of a directly ethical disquisition he cannot be said to have redeemed; and the clause which admitted its necessity was, in his second edition of *The Principles*, omitted. It has therefore been left for his commentators to elucidate the "hint," which he declares will suffice (§ 100) to let any one see that "the doctrine of abstraction has not a little contributed towards spoiling the most useful parts of knowledge".

Even without his promise, the method by which he proceeds to divide the sciences shows that Moral Philosophy must logically be included among those which are to be aided and abridged; not to mention an explicit declaration, in his *Common Place Book*, that Truth is of three kinds: Natural, Mathematical, and Moral. We know how, in the light of his discovery, he has handled the first two kinds; as regards the last, in the absence of a particular disquisition, this "hint" and his writings as a whole are all the materials we have for a solution of the question of the relation of Berkeley's ethical theories to his *Principles of Human Knowledge*.

This relation has been described by Prof. Fraser as a 'curious and close analogy,' which he thus interprets in a note to the third dialogue of *Alciphron* (vol. ii. p. 107), summing up the fundamental principles of Berkeley's ethical system as follows:—"That the general well-being of all men, "of all nations, of all ages of the world," is what the infinitely good God intends to be promoted "by the concurring actions of each individual"—that this end is to be accomplished by the observance of universal rules which have a corresponding

tendency—and that faith in divine moral government and man's immortality is necessary to make the rules efficacious'.

An attentive criticism may show, more fully, the connexion of these principles with one another; and establish a still closer and more curious resemblance between Berkeley the moralist and Berkeley the metaphysician.

If we are to understand the historical significance of the scattered materials which his writings offer for the construction of a particular disquisition on ethics, it is very necessary to approach them with an idea of what may be appropriately expected from an ethical writer of his day. In every writer, the stress and the emphasis are only to be caught from the contemporary controversies; and in Berkeley, more than in any other, it is impossible, without a perception of the stress, to make anything but a confused and chaotic medley of discords never resolved and suspensions held continually in suspense. A controversial bishop may say much about the pleasantness of the paths of virtue, and yet not be a hedonist. An eager preacher of the eighteenth century may turn a vigorous appeal upon the rewards offered in a future life; and yet it need not follow that he is to be classed as a mercenarian of the nineteenth century. It is necessary to look to what a man is denying, if we would learn the scope and the accent of what he is asserting; and it is equivalent to a transgression of generic differences, or, as Aristotle would term it, *ἀπαίδευσία*, to deduce a nineteenth-century conclusion from a premiss casually given in English eighteenth-century ethics.

The danger of applying the catchwords of the present to the thought of the past, has never been better illustrated than by the inappropriateness of the title 'Theological Utilitarian' to Berkeley as a moralist. It is in this phrase that Prof. Fraser has summed up the 'fundamental principles' which were quoted above.

There is something, it is true, in Berkeley's works which sounds very like 'the greatest good of the greatest number': let us call it Utilitarian. The bishop has also written much about God; let us qualify him, therefore, as 'Theological'. To a writer so flexible, and so copious in the improvisations which controversy demands, it would be equally easy to justify the application, by this method, of almost any other modern philosophical nickname; and equally profitable. There is one sense, and one sense only, in which the phrase 'Theological Utilitarian' has an intelligible meaning; and in that sense it is not applicable to Bishop Berkeley. It is intelligible, if it is to imply a view of the nature of good

as consisting in pleasure : of the test of good as that which brings most pleasure in the end ; of the chief obligation of morality as the pleasure or pain to be meted out for an infinite number of years in a future life, or, as Bentham calls it, the religious sanction. In this sense, it is the 'other-worldliness' of which Coleridge and George Eliot speak ; it is the venal morality which bargains for eternal life, at the cost of unreasoned virtue. The Hindoo who threw himself before the car of Juggernaut, that he might realise the *sum-mum bonum* in a paradise of sensualism, was a Theological Utilitarian. Subtler forms of the creed are represented by Lord Tennyson, in his character of St. Simeon Stylites :—

' Who may be made a saint, if I fail here ?
 Show me the man hath suffered more than I.
 For did not all the martyrs die one death ?
 For either they were stoned, or crucified,
 Or burn'd in fire, or boiled in oil, or sawn
 In twain beneath the ribs ; but I die here
 To-day, and whole years long, a life of death. . . .
 Surely the end ! What's here ? a shape, a shade,
 A flash of light. Is that the angel there
 That holds a crown ? Come, blessed brother, come.
 I know thy glittering face. I waited long ;
 My brows are ready. What ! deny it now ?
 Nay, draw, draw, draw nigh. So I clutch it. Christ !
 'Tis gone : 'tis here again ; the crown, the crown !'

It is in this sense, only, that the words have an intelligible meaning, and as a form of Egoistic Hedonism. It has been said that every man has his price : assuredly, the Theological Utilitarian's is Heaven. What is good ? That which will enable me to avoid the pit, and clutch the crown. The sanction is personal pleasure or pain. Benevolence is, indeed, possible, as a useful bid for the prize, but below the skin it must be hedonistic too ; for if I extend it to a willingness to forego the real pleasure which turns the balance, the crown, then the morality is brought to a self-contradiction. That which will take me to Heaven, must always be my definition of good.

This is the familiar and intelligible sense of the phrase which Prof. Fraser has applied to Berkeley ; and it is the name for a creed which has certainly been preached, whether or not it has ever been held. If it is to be made to cover Berkeley, careful distinction must be made between him and all others to whom it has been applied. It must be held to indicate an anticipation by Berkeley of many of the criticisms brought to bear upon Bentham and his followers ; an acceptance of a definition of good, as 'that which tends

to the greatest amount of happiness, for the greatest number of men,' and the addition of a sanction, probably inconsistent, to overcome the difficulty of converting Hedonism into desire for others' good; this sanction being conveyed in a theological threat. Instead of being purely dogmatic, it submits the nature of good to arbitration and analysis, but reserves the sanction for revelation. In the one case, 'good' is the condition of entrance into heavenly bliss. In the second case, we are instructed to study the welfare of men in general, in order that we may know our duty: if we ask what claim this duty has on us, argument gives way to dogma; reason is ratified by the theology of threats.

It is, probably, in this latter sense, that the phrase Theological Utilitarian has been used by Prof. Fraser. Some support for such a reading of Berkeley's works may, no doubt, be discovered in the manifold varieties of his utterances; it may, or may not, be a complete account and synthesis of them. But, in that case, what becomes of the 'close and curious analogy' which is said to exist, between his ethical system and his system of human knowledge? How is there a parallel between the grounds of reality and of obligation? or a similarity in the relations of God and the world? What point, what aspect, is there in such a moral creed, which reminds us of anything peculiar to Berkeley in his conception of the material world? How is the God visually apparent in 'this mundane system,' analogous to the Judge who holds aloof from a natural morality, until the dread moment for enforcing it? According to Berkeley's metaphysical writings, God is so far the most clear and primary reality, that we only know ourselves by our knowledge of Him. In this reading of his ethical system, the reality of good depends upon the pleasure-sensations of men; and we can go all the way, without God, in the discovery of the nature of good, by the process which the word Utilitarian suggests. God is only necessary as the original willer that the formulæ of universalistic hedonism should be correct, and the ultimate avenger of their validity. If there be any analogy in these two conceptions of God and of the world, it is rather curious than close.

The clue to a different interpretation of this analogy is found in that part of *Alciphron* in which the moral doctrines of Shaftesbury are criticised. According to Green, in morals Berkeley 'ought to have regarded Shaftesbury as his yoke-fellow'; and indeed, if Berkeley's system were based on nothing but the fleeting ideas of the pleasure and pain of individuals, then his antagonism to Shaftesbury's recognition

of principles of beauty and proportion among these ideas, would be hard to understand. And yet there is no part of *Alciphron*, in which the spirit of opposition runs higher, than in the criticisms, personal and literary, which are levelled against the "crazy nobleman," Cratylus, and his reduction of virtue to a relish, or a certain *je ne sais quoi* of appreciative contemplation. The antagonism is not more determined, even when the theory of abstraction, or of the existence of matter, is the subject of dispute.

If we carefully inspect the arguments which Berkeley brings to bear upon the doctrine that 'virtue is beauty,' we may discover the line which his particular disquisition would have taken, upon the leading moral controversies of the day.

One of the foremost issues was the debate, as to the faculty which apprehends moral truth. Even at the present day, we occasionally come across lingering traces of the belief, that to explain the origin of a sentiment is to deny its validity: and at the time when Locke's dictum was universally accepted, that truth consists in the perception of the agreement or disagreement between ideas, it was natural, that those to whom the universal certainty of moral truth seemed vitally important, should endeavour to argue down the dangerous supposition, that we apprehend moral truth by any other faculty than that by which we see that two and two make four. It seemed that, unless the claim of virtue could be put as high as the claim of the multiplication-table, universal obligation must give way to individual caprice; and in no other way could scepticism more grieve the enthusiasm of the orthodox, than by urging the claims of the faculty which feels to influence the man who is about to act. An eternal and immutable morality rests upon an intellectual system of the universe; and though, in later days, a skilful handling of the other subject of dispute, the relation of God to morality, could reconstruct a binding and yet intelligible ethics, upon a partly sentient faculty of conscience, yet in Berkeley's day the time had not come for these damaging admissions to 'the enemy'. Moral views prevailed, as to the moral faculty. So when Hume mischievously remarks, that 'belief is rather a state of the sentient, than of the cogitative part of man,' he is aiming the deadliest of all blows at the truth of the matter of such belief. And when he says, as he does distinctly say, that it is a moral sense, and not the faculty of reason, which distinguishes right and wrong, he is speaking in direct allusion to a critical ethical topic of his day.

Hume's denials are a guide to Berkeley's assertions. By

what faculty is moral truth apprehended? Very distinctly Euphranor implies, that the "notion" is "an object of the discursive faculty". And if moral truth is also moral beauty, the very fact of its being beautiful, proves, all the more, that, as beauty, it is an object of the understanding. That is the line of the argument which, at first sight, seems disposed to take the turn of denying Shaftesbury's position, that virtue is beauty. Berkeley does not deny it: he accepts, and asserts it. Virtue is beautiful, and is, therefore, not the object of a moral sense, but apprehended by the discursive faculty. Virtue is beauty, and must, therefore, rest, as beauty does, upon a mind. "We do not see beauty, strictly speaking," says Euphranor; "we infer it." "We see it by reason, through the means of sight; consequently, beauty, in this sense, is an object, not of the eye, but of the mind" (*Alciphron*, iii., § 8). The long digression upon architecture, which follows, is summed up to precisely the same effect. "I should now, methinks, be glad to see a little more distinctly the use and tendency of this digression upon architecture." "Was not beauty the very thing we inquired after?" "It was." The necessity of some real principle of beauty is then demonstrated; beauty implies an end; an end, "forasmuch as without thought there can be no end or design," implies a mind, which rules over the universe and the moral actions of men. Thus the outward show and appearance of virtue is made to yield by analysis a metaphysical proof of the "spirit which governs and actuates this mundane system"; and it is with the moral world, exactly as it is with the material, that its *esse* is *percipi*. The parallel is complete, as to the faculty called into play. We have here a "new theory" of ethical vision. The eye does not "see"; it furnishes to the mind, materials for seeing, "the canopy of heaven, and the choir and furniture of earth"; so, in the moral world, "the comparing parts one with another, the considering them as belonging to one whole, and referring this whole to its use, or end, should seem the work of reason: should it not?"

The analogy between Berkeley's ethical system, and his *Principles of Human Knowledge*, is this:—The material world consists only of ideas; the *esse* of matter is *percipi*; the only true substance, spirit. But, inasmuch as we find, that the ideas of different spirits vary, that ideas are void of force, and that each spirit has not control over its own ideas; since, in short, these ideas demand a metaphysical ground of unity, source of energy, and basis of reality—we infer God, as the universal spirit percipient of consistent truth, the permanent reality, and the source of energy. All that is not

spirit, is idea ; and the difference between true and false ideas, between life and illusion, is, that the true ideas are also God's ideas, and He is the one Spirit who sustains, consistently, and for ever, the many ideas which come and go in the minds of men. To know the truth, is to have the same ideas as God. "Laws of nature" are observations, for practical purposes correct, of the order in which he is pleased to manifest this succession of ideas.

So, in the moral world, we have "laws of nature," which are approximately demonstrated ; we can learn them by certain signs, and recognise the voice of God in the orderly proportion of moral phenomena (*Passive Obedience*, § 8). To do the good, is to have the same ideas as God. This world only shows a multiplicity of moral perceptions, pleasures and pains, which cannot explain themselves ; the human spirits who perceive them, perceive also the limits of their power over them, and require some independent ground of their validity ; they perceive their own differences of moral ideas, and require some criterion of good and bad ; they find it in the Spirit who holds all truth and reality together. Of moral, as of other ideas, some are permanent ; some are individual fancies and aberrations. Good is true, and real, and life : evil is false, and illusory, and death.

"A spirit is one simple, active, undivided being : as it produces ideas it is called the will ; as it thinks, or otherwise operates upon them, it is called the understanding." In each of these aspects, God is related to the human spirit. Good is predicated of will ; truth is predicated of the understanding. Ideas are true, or good, when the human spirit is at one with the divine.

By such an analogy Berkeley might well have claimed for his "particular disquisition," that all the complications of human conduct are solved by the same metaphysical *Deus ex machina* who had solved all the problems of knowledge. First, the question, as to the faculty which apprehends right and wrong, is set at rest : moral laws are laws of nature ; but there is no value or force in them as laws, save in so far as they are the orderly expression of God's ideas. Both in natural, and in moral philosophy, these generalisations are to be attained by means of the use of reason. In the *Discourse on Passive Obedience*, a single moral "law of Nature," "Thou shalt not resist the supreme power," is submitted, as an instance, to this process ; and is identified by means of the marks which are proper to such a law—importance, universality, niceness, or difficulty. To reason and to argumentation are left—first, the very being of laws of nature ; secondly, the criterion, whereby to know them ; and, thirdly, the

agreement of any particular precept with that criterion (§ 29). And so far are these laws from being the *a posteriori* conclusions of Utilitarian calculation, that "these propositions are called *laws of nature*, because they are universal, and do not derive their obligation from any civil sanction, but immediately from the Author of nature Himself. They are said to be *stamped on the mind*, to be *engraven on the tables of the heart*, because they are well known to mankind, and suggested and inculcated by conscience. Lastly, they are termed *eternal rules of reason*, because they necessarily result from the nature of things, and may be demonstrated by the infallible deductions of reason" (§ 12).

But there was another question at issue for a moral philosopher of Berkeley's day; and the manner in which he gathers up his solution of this ethical question, in his own peculiar metaphysical theory, would have been one of not the least attractive parts of the "particular disquisition". Ever since the day of Descartes, and, possibly, long before, the relation of God to morality had been a difficulty for the dogmatic. Could God, if He had chosen, have appointed a different moral order? Is good in its nature independent, or is it merely good because God wills it? Descartes had said, that if He so chose, God could will that good should be evil, and evil good. The anxiety of the thinkers of those days, not to place anything on a footing of independence towards God, often becomes even grotesque; as in the case of the argument as to the nature of space—that it could not be infinite, or else there would be two infinite beings, and space would be a rival to God's omnipotence. But, still, the view, that morality was not absolute, but, so to speak, a divine derivative—the bare possibility that God might revoke the delegated validity of virtue—was to many moralists the more disagreeable alternative; and amongst those who endeavoured to explain, that without any limit to God's omnipotence, it was, at the same time, impossible for Him to put bitter for sweet and sweet for bitter, to call good evil and evil good—was Cudworth, author of the *Eternal and Immutable Morality*. In this book, posthumously published just when *Alciphron* was ready for the press, the nature of fate is discussed with great erudition, and the relation of God to morality settled by means of a subtle distinction between God's reason and God's wisdom.

Now it is obvious that the difficulty here again arises from a supposed dualism of good objective and good subjective; and it is easy to guess how Berkeley would have handled any such distinction. When he "hints," that the doctrine of ab-

straction has contributed not a little towards "spoiling the more useful parts of knowledge" (*Principles*, § 100), we are but dull learners, and suffer in vain from his reiteration, if we do not understand, that to Berkeley "abstract ideas" mean a reference to some objective reality "apart from the mind," and that with such dualisms he has a short way. He defines existence as perception, and the distinction of internal and external disappears. There can be no good independent of a mind, and, therefore, no rival to God's omnipotence. As for the supposition that God might have willed good to be something different from what it is, such an hypothesis merely amounts to the absurdity of imagining, or trying to imagine, a negation of the law of identity. Good is that which is present in the mind of God; it is impossible to imagine that evil, or that which is absent from His mind, should be present in it as well; and in *Siris* (§ 320), he thus plainly states this corollary, 'Evil, defect, negation, is not the object of God's creative power'.

We have seen that, in *The Principles*, Berkeley makes the distinct statement, that his metaphysical theories will have a direct bearing upon moral philosophy; that such a connexion is strictly in keeping with other passages in which he speaks of the nature of moral truth; that he foreshadows a particular disquisition upon the subject, but, meanwhile, leaves his readers with a "hint" which he hopes will suffice to let any one see, that the abolition of abstract ideas will mean a reform in ethics. We have seen that Prof. Fraser has drawn attention to a 'curious analogy,' existing between Berkeley's ethical and metaphysical theories, although, in the short summary in which he has intended to express the analogy, he has rather obscured it by the use of a phrase which either denies, or else inconsistently asserts, a connexion between ethics and metaphysics. We have recognised that in moral, as in natural philosophy, Berkeley must intend his abolition of abstract ideas as the prelude to an idealism in which God is both the ultimate and the immediate reality; a system of which it is the "main drift and design" "to inspire his readers with a pious sense of the presence of God" (*Princ.* § 156). We have seen, furthermore, that this hint of a connexion between ethics and metaphysics, as an alliance to the great advantage of the former, is not a mere idle boast on the part of Berkeley; but that, in the *Discourse on Passive Obedience*, he addresses himself to a demonstration, in a single instance, of the identity between a moral law and a law of nature. We have amplified this demonstration by once more stating the peculiar meaning attached, in his system, to the words "law of nature"; and

we have been warranted in so doing by the result which is given by a close and exact attention to the criticism, in *Alciphron*, of the saying of Shaftesbury, that virtue is beauty.

Those parts of Berkeley's writings, from which the present argument is mainly supported, are justly said by Prof. Fraser to be the most important statements of Berkeley's moral philosophy. But of the many services which this commentator has rendered to the readers of his author, not the least valuable is his observation of the development and progress of Berkeley's idealist principles. And it is, similarly, not the least curious part of the close analogy that exists between Berkeley's ethical and his metaphysical principles, that precisely the same advance which is found in his conception of nature may be traced, also, in his conception of morality.

The 93rd section of the *Discourse on Passive Obedience*, which was only added in the third edition, might be quoted in illustration of this development in reference either to ethics or to mathematics :—

"In morality the eternal rules of action have the same immutable universal truth with propositions in geometry. Neither of them depends on circumstances or accidents, being at all times and in all places, without limitation or exception, true. 'Thou shalt not resist the supreme power' is no less constant or unalterable a rule, for modelling the behaviour of a subject towards the Government, than 'Multiply the height by half the base' is for measuring a triangle. And, as it would not be thought to detract from the universality of this mathematical rule, that it did not exactly measure a field which was not an exact triangle, so ought it not to be thought an argument against the universality of the rule prescribing passive obedience that it does not reach a man's practice in all cases where a Government is unhinged or the supreme power disputed."

The mystic pantheism of *Siris*, is the most remarkable instance of the development of Berkeley's principles, from a staring dualism of Spirit and Idea, into a conception of God which incorporates "ideas," in the Platonic sense, in a logical chain of graduated universality, with the *anima mundi*, the expression of them all; and ascends from tarwater, acid, salt, and sulphur, "by a regular connexion and climax, through all these mediums, to a glimpse of the first mover, invisible, incorporeal, unextended source of life and being". So of ethical study Berkeley dedicates, in the *Siris*, the later growth as well as the first fruits; and we advance, from the earlier conception of law, as a synthesis of the succession of ideas in a personal God, a spirit limited, because distinct from ourselves, into a mystical identification of God with law and order (§ 334) and the elevation of the principle of order, or *λόγος*, into membership of the Trinity (§ 361).

V.—MÜNSTERBERG ON 'MUSCULAR SENSE' AND 'TIME-SENSE'.

By the EDITOR.

THE first of the four researches occupying pt. ii. of Dr. Münsterberg's *Beiträge zur Experimentellen Psychologie* (see MIND No. 58, p. 234) is a very good and characteristic specimen of his workmanship. It is concerned with that question of 'Time-Sense'—meaning the comparative measurement of short time-intervals—which has been one of the most constant subjects of psychophysical inquiry for the last five-and-twenty years, but which, owing to the bewildering variety of the results obtained, cannot thus far be reckoned among the triumphs of the experimental method. Münsterberg carefully reviews all the work that has previously been done upon the subject, from Mach, HÖring and Vierordt on to the younger investigators in Wundt's laboratory; embarks next upon a far more searching introspective analysis than had yet been attempted of the conditions and means of time-measurement; and, after gaining thereby some light upon the discrepant and even opposed figures of the other experimental inquirers, brings his own subjective results more or less decisively to the test of positive experiment.

The inquiry bears directly on the general thesis of the *Beiträge*—that all so-called activity of consciousness must admit of resolution into "change of conscious content" if the psychophysical method is to be taken seriously and consistently carried through. It is common to the later time-researches (which have proceeded chiefly from the Leipsic laboratory) to find, with whatever difference of numerical values, a periodicity in the power of more or less accurately estimating the comparative lengths of experimental time-intervals. The only supposition so far advanced to meet the facts has been to credit consciousness with a faculty of directly apprehending such (short) intervals. This faculty has been called 'Time-sense,' after Czermak, who in 1858, without himself experimenting, gave the first suggestion of specific inquiry to be made on the subject. It is distinguished by Wundt (*Phys. Psych.*, 3te Aufl., ii. 354) from our common estimation of the lapse of time—allowed, so irregular as it is, to be dependent on the varying flow of representation. Now one result of Münsterberg's inquiry is to break down the distinction which it has thus been sought to make between our rough natural judgment of the length of considerable time-intervals and that delicate appreciation of minute differences which takes place under experimental conditions. In the one case, as in the other, he finds a "content"

present; and all depends, in either case, upon what the nature of the content is. Speaking generally, the "content" proves, directly or remotely, to be of that kind which goes most commonly by the name of 'Muscular Sense' (because in some way connected with the physiological process of muscle-innervation). The present occasion requires, therefore, some definition of Münsterberg's position in regard to 'Muscular Sense'; and it is the more necessary that this should not be deferred, because it is one of the most characteristic features of his whole line of inquiry that he shows the muscular factor to be everywhere implicated in the psychophysical theory of mental life. It figures with decisive effect in all the researches he has yet published; being even employed in the latest memoir (filling pt. iii. of the *Beiträge*) to account for the intensive character of sensation generally, and thus giving ground for a daring attempt to refound from the bottom the whole theory of the quantitative relation between sensation and stimulus, to which (since Fechner's time) the name of 'Psychophysic' has mainly been limited. Upon that attempt, with its underlying theory of intensity, all judgment is reserved; but any remarks now made to clear the way for understanding of the results, as striking as they are novel, obtained in regard to 'Time-sense' may yet be taken as having also other application, of which more anon.

Münsterberg's doctrine of 'Muscular Sense'—to call this here by its least question-begging appellation—is worked out at length in his prior essay, *Die Willenshandlung* (see MIND xiii. 436), and is only summarily repeated in the course of the *Beiträge*. While not put forward as mediating between the opposed theories that have thus far occupied the ground, it yet may be regarded as helping in that way, and the more deserves consideration on this account. Apparently, he puts himself on the side of those who, of late years, with gathering strength, have contended that all the sense-experience in the case is peripherally determined—that muscle has first to be got into the state of actual contraction and afferent nerve-fibres in muscle itself or related parts (ligament, joint, overlying skin or what not) have to be thereby stimulated at their peripheral ends, with consequent cerebral excitation, before anything that can be called 'sense' arises. In other words, the supposition (as by Bain or Wundt), of a specific subjective experience directly attending the original cerebral outflow of nerve-impulse towards muscle must be rejected. Yet, in fact, nobody could be more decided on the point that, with all muscular action which we are consciously aware of performing, there is other subjective accompaniment than follows upon actual contraction at the periphery. There is always, in such case, a prior state of consciousness involved, a real (subjective) antecedent to the innervation of the muscle or muscles concerned. In other words, Wundt's 'innervation-feeling' (or Bain's 'feeling of mus-

cular exercise,' 'feeling of energy put forth') stands for an indubitable fact of experience. True, it is nothing that can properly be called 'sense,' being in point of fact, a mere memorial representation (*Erinnerungsbild*) of foregone muscular action now again to be put forth. But, besides being thus inevitable antecedent of the coming contraction, so much and so regularly is it also constant accompaniment throughout the whole course of the muscular act that in pathological circumstances, where this or that element of present sensation (peripherally determined) may have dropped out, it can supply in representative form all that is wanting to the effective conscious account.

If this may be taken as a fair indication of the position taken up by Münsterberg on the question of 'Muscular Sense,' I desire, without now considering how far it may have been before approached by others from the same side, to call attention first to the significance of the concessions it involves. It is allowed that in the muscular (or, as it is commonly called, motor) attitude we are quite otherwise conscious than in any state of mere sensible affection. Whatever elements of (passive) sensation, peripherally determined as in the case of all other passive affection, may be shown to be present in the conscious account when muscle is contracted, there is also never absent another element of experience peculiar to this case and to this case alone. In none of the special senses or the modes of general sensibility does the conscious experience that arises through stimulation of afferent nerve-fibres have as antecedent other conscious experience, which, whether representative or not, means a cerebral excitation already under weigh before the brain is again excited by ingoing stimulus from the periphery. Now Bain at least, with his 'Muscular Sense' proper, has always been concerned to establish nothing so much as just this peculiarity of *attitude* in the system (whether physically or psychically understood) when muscular action is in process; and, for the rest, both he and in his own way Wundt have never overlooked the elements of (passive) sensation inevitably bound up, by constitution of the system, with the process of muscle-innervation. To me, indeed, it has long seemed that, whether regard be had to the elements of 'common sensation' necessarily excited under muscular contraction or to the procurement and variation of special sensations (sight, touch, &c.) effected by exercise of particular muscles (of eye, hand, &c.), the truest description of so-called 'Muscular Sense,' for psychological purposes, will represent it as never other than a co-efficient with this or that kind of passive sense to a resultant in experience that is most aptly termed 'active sense'. Though it may, by experimental artifice, be more or less separated out from the accompaniment of special sensation by which it is normally attended; and though it may even, with greater difficulty, be made to throw off this or that element of common sensation ('organic sensibility') naturally implicated with it; yet

in perfect purity, *i.e.*, without *any* concomitant of (passive) sensation—meaning sensation peripherally stimulated—I do not see how it can ever in actual experience be found. This, however, should not remain doubtful, that there is in it, as a kind of conscious experience, something other than and prior to any such sensation.

As to whether this prior element has an altogether representative character or may be claimed as, at least to some extent, presentative—which is a way of expressing what both Bain and Wundt assert by their use of the name 'feeling,' or also 'sensation,' for it—the point is one of great interest, though its determination one way or the other would not affect the main psychological issue. That there must be representation involved, is not to be doubted. The fact that the process of muscular innervation, in the case supposed, sets out from a cortical seat, however constituted or wherever situated this may be, implies that it must be affected by all that has previously gone on in or through that cortical area; and this, in subjective language, means 'representation'. Why, even in the case of peripherally stimulated sensation, where of course the stimulus has first to reach the brain-centre before the sensation comes to pass as conscious experience, it cannot be supposed that this, though denominated 'sensation,' is so altogether presentative in character that it is not, then and there, modified in quality or otherwise by previous excitation of the same centre—in other words, is not overlaid by 'representation'. Let it then be frankly allowed that any particular muscular innervation proceeding from the brain-cortex must have its specific subjective phase—I mean that distinctively prior or initial one now under consideration—inevitably modified by the previous history of the 'centre' concerned. And all those who (like Münsterberg) have learned to regard the physiological distinction of 'motor' and 'sensory' centres as more or less artificial, may well hesitate to say what amount of representation may not be involved in the energising of whatever widespread or deep-going cerebral plexus a particular muscular innervation takes its more immediate start from. But just as there never has been any hesitation in connecting some mode of presentative consciousness, under name of 'sensation,' with cortical excitation determined from the periphery—without reference to the representation necessarily co-involved, and apart from any question of the farther course towards the efferent (so-called 'motor') side of the system which an incoming (so-called 'sensory') stimulus always *tends* to pursue; so, when from within (*i.e.*, apart from direct 'sensory' stimulus) a process is started which results in muscular innervation at the periphery, it seems analogically justifiable to posit an element of presentative consciousness in the case—over and above anything in the way of representation not denied to be necessarily implicated. The difference on the afferent side of the system between sensation and representative image is allowed to

be one that depends only, or at least mainly, upon degree of excitation ; this being (normally) greater when determined from the periphery. How then should there not be a corresponding difference of representative and presentative experience on the efferent side when the cerebral process in one case is not, and in the other is, effective in producing overt muscular contraction ? The force of the analogy, such as it is, can be turned aside only by the kind of assumption which, for example, Bastian has made, when he declares the organ of mind to be " that portion only of the nervous system which has to do with the reception, the transmission, and with the vastly multiplied co-ordination of ' ingoing currents ' in all kinds of nerve-centres " (cp. *MIND* vi. 128). But with an organic whole like the nervous system, nothing could well be more perilous than such division.

The reference just made to Dr. Bastian, who among English inquirers led the way and has maintained the lead as advocate of what may be called the passive-sense theory of ' Muscular Sense,' suggests another. A point that remains to be noted in Münsterberg's treatment (or expression) is common to him with his English predecessor. Some ten years ago, in a review of *The Brain as an Organ of Mind*, it was observed here (vi. 127) that to speak, with Bastian, of ' Muscular Sense ' as ' Sense of Movement ' (' Kinæsthesis ') did not mark a step forward in psychological discernment. Bastian, to be sure, was not singular in adopting that mode of expression, for it had been used by Bain and others before as a convenient synonym. It has also since that time been pretty freely employed, apparently without heed to any difference of implication. Thus, Münsterberg, who generally uses the name *Spannungsempfindung* or ' sensation of strain ' (cp. Bain's ' dead strain ') for the whole aggregate of conscious experience, representative and presentative, attending the muscular act, does not hesitate to give often as simple alternative *Bewegungsempfindung* or ' sensation of movement '. A little reflexion, I venture still to think, should suffice to rule it out as either alternative or substitute. ' Movement,' as such, is, no doubt, a notion of prime importance in psychological explanation, and much that appears simple to ordinary consciousness finds expression in terms of more or less complex motor representation ; but, however potent an instrument of psychological reduction, movement cannot be held a simple datum of conscious experience except with those to whom space and time appear to be such data. Granted an original intuition of space and time, and there need then be no difficulty in assuming a sense—or, rather, intuition—of movement, importing with it the relative apprehensions of time and space within which movement has to proceed. But, if it is recognised that one of the psychologist's first and chief tasks is to give genetic account of our space- and time-apprehension (let the data employed for this be what they may), how can ' movement ' help following suit ? To Münsterberg

at least, it is not doubtful that space-perception is a synthesis of touch, sight, &c., with 'muscle-sensation' (as sometimes, *e.g.*, pt. ii. 25, he does not fail to call it). I would urge then, not that 'muscle-sensation' be never called anything else, but that those who rely upon it as indispensable (original) factor in the psychological account of space-apprehension should never call it by the name of 'sensation of movement'. They cannot do so without laying themselves open to the charge of having already virtually assumed space (and time) as simple original intuitions and thus of solemnly playing out the farce of ὑστερον πρότερον. 'Movement' in short, from the psychogenetic point of view, is a complex perception, as ill-fitted as possible to be the designation (subjectively meant) of an original sense-experience. It is not 'movement' that we are originally conscious of in the case of muscle-contraction—were it only because, in point of fact, movement is by no means always the result of getting into the muscular attitude. Moreover, when movement does result, it is movement of limb, head, &c., that in fact takes place and that we are conscious of,—not movement of muscle (as in a loose way, with more or less of physiological reflexion, we come to say). Now, surely, movement of limb or the like is, subjectively regarded, most complex perception. Thus, on every ground, 'movement' is to be deprecated as subjective designation of the simple sense-experience. For this we must rather fall back upon and adhere to such words as 'tension,' 'strain' or 'effort,' which—though they too (like most others, if not all, psychological terms) are not without an objective meaning and application—can consistently be used with an import at once subjective and simple. To 'muscle-sensation,' on the other hand, no exception can be taken, provided it is meant for no more than mere external designation as when we speak of 'eye-sensation,' 'skin-sensation,' or the like.

Turning now to the special question of 'Time-sense', it is impossible for anyone to read such an account as Wundt gives (*Phys. Psych.* ii. 348-59) of the experimental results hitherto obtained and not to be struck most of all by their extreme discrepancy. The time certainly had come for asking what it might be that was rendering so futile all that expenditure of scientific skill and patience. Prof. Cattell, when giving in *MIND*, a year or two ago, some general account of the psychological work that had been done in the Leipzig laboratory, made in regard to the time-experiments a suggestion as to unavoidable error in the method adopted; but this applied rather to the discrepant results obtained by one and the same inquirer than to the more signal differences separating every inquirer from all the rest. The fault, evidently, must lie deeper; not to say that the various experimenters have themselves, in general, shown no want of ability or readiness to note and allow for shortcomings in mere method. Experiment, where applicable, is a very powerful instrument, but, if it

is to perform its decisive work, there must first have been a close intellectual analysis of circumstances and general conditions, and the end to which it is to be directed must be well and clearly conceived. In the present case, it is mostly at the prior stage of pure psychological consideration that the fault has lain; or, rather, it is want of prior psychological analysis that has rendered so abortive all that experimental labour.

Here in paraphrase, with some expansion, is Münsterberg's final summary (p. 13) of the outcome of his predecessors' work. The 'constant error,' which most of the inquirers have noted in our comparison of small times, is according to one the result of accidental circumstances, but according to others takes the form of regular over- or under-estimation: one maintaining that times under 3 sec. are magnified and above 3 sec. are shortened; another putting the dividing point at .75 sec.; and a third declaring that not only the times under .75 sec. but also the comparatively larger times over 5 sec. are magnified. When there is under-estimation, this, according to one, attains a minimum, *i.e.* departs least from the true value, at all multiples of .7 sec. (or thereby); according to another, only at all odd multiples of this figure (2.1, 3.5 sec.), the even multiples on the other hand yielding maximum-values¹; while, according to a third, the reckoning is least inexact at multiples of 1.25 sec. As for Weber's law, it either, according to one, has no application to 'Time-sense'; or has absolute application, according to another; or, according to a third, holds for the smaller but not for greater intervals; or finally, according to a fourth, holds for the greater but not for the smaller. In this summary record, no account is taken of Mr. L. T. Stevens, who in *MIND* xi. 393 got, as main result of a very protracted series of experiments, a complete reversal of that sign-value of the 'constant error' upon which, amid all their other differences, the German experimenters have agreed more or less; Stevens finding the smaller times (under .53 sec.) to be under-estimated, and the larger (over .87 sec.) to be constantly over-estimated! Bad as things are with the 'Time-sense,' they are not quite so bad as this direct contradiction would make them appear. Stevens's method of experiment, as Münsterberg points out, is too disparate from that of all the others to afford any grounds for comparison of results.

Taking, then, the German results, in all their variety, by themselves, Münsterberg proceeds to ask whether it can be otherwise than that the different inquirers have unawares brought quite different measures to the estimation of those small times; and this suggests the central question of all, what it really is that they have set out to measure in the case. A small time-interval being

¹ In his summary statement (pp. 13, 14), Münsterberg has here, by oversight, put "maximum" for "minimum" and "minimum" for "maximum".

marked off by two limiting sounds, the problem, in general, has been for the experimenter—starting at once from the second sound, or waiting till after a pause (commonly taken of the same length as the given time) and then starting from a third sound—to indicate by some kind of action when he judges that an equal time has elapsed as between the first two sounds. The particular means by which this is effected for such very short intervals as can with some approach to accuracy be thus determined are detailed at length by Wundt (*Phys. Psych.* ii.), who has done more than any other to devise them; they are also sufficiently explained by Münsterberg, who, while vindicating them from some objections that have been charged, is able also to improve upon them for his own use. Without attempting any description of them here, the point to be noted is, that the 'comparison-time' sought has to be subjectively determined, being sensibly limited only at the beginning, whereas the given or 'normal' time is objectively (sensibly) determined at both ends. Now the assumption hitherto has been that the two limiting sounds form the whole sense-content of the 'normal time,' and that the apprehension of time-interval between them must be set down as a direct act of consciousness, which can be repeated with more or less exactness under the different conditions of the 'comparison-time'. The directness or simplicity of the conscious function in both cases has procured it the name of 'Time-sense,' but, in reality, all that is strictly sensible in either case are the limiting sounds. It is here that Münsterberg takes issue.

Careful introspective scrutiny of his own time-estimates under the experimental conditions discloses for him a whole class of factors overlooked, or hardly regarded, by previous inquirers. These are sensations (or representations) of muscular tension, and when looked at closely enough are found to be of the most varied kind. As to this presently; but first a word on the question of principle. How without some definite means should there be estimation of time at all between two sound-sensations? Two pairs of similar sounds, separated now by one now by another interval of time, are to consciousness the same fact of sense-experience except in so far as something else is present to differentiate the pairs in respect of time-interval. Let this something be (as it may be) called act of attention, since without special attention to the time-intervals as such the experience in each of the cases supposed would simply be of the sounds as two. But then the attending, which makes or marks the difference of time-interval, must consist of something—something different in the two cases; and what may this be but certain feelings of muscular strain (actual or represented), if the feelings are evidently there and the closest observation can detect nothing else? Sense of muscular strain, though by itself, of course, it is not consciousness of time, may yet be so much the main factor in such consciousness as to mark (in its variations) the difference

between this time-interval and that. Without arguing the matter at length, Münsterberg here takes up the position that as space-apprehension can be shown to arise through fusion or synthesis of elements of sensation (chiefly touch and sight) with felt muscular activity, so also time-apprehension is explicable as another synthesis of feelings of muscular tension with sense-elements (by preference sounds). No doubt, the question even as regards space remains under debate; but at least from those who under Wundt's lead have done most of the experimental work on 'Time-sense' no objection in principle can come to the extension of such psychogenetic consideration to time. All depends however, for the one or the other problem, upon the precise nature of the muscular experience to which the (passive) sensations, so differently present in space- and in time-perception, give occasion. Hence, for the more special question of the means of comparative time-measurement now in hand, the need of making up the account with all that particularity that distinguishes Münsterberg's novel introspective effort.

His experience is in many ways far from uniform, but, except with very short intervals (put for himself under $\frac{1}{4}$ sec.) where nothing can be noted, the central fact is for him always a felt process of varying muscular strain. The experiment, let it be remembered, consists in the attentive hearing of a first sound, with a second expected presently; upon the hearing of which—in the simpler case where no pause intervenes (to be closed by a third sound)—the subjective estimate of 'comparison-time' has to go forward without other condition supplied. There is actual strain in the hearing of the first sound; and this being taken, in the circumstances, as signal of another sound to follow, there is next representation of strain in expectancy of the second sound, with actual strain again when this comes to be heard; whereupon representation must do all the rest. Now what Münsterberg finds is, that the varying strain, actual or represented, fills up and is all there is to fill up his consciousness in connexion with the limiting sounds. The sounds themselves have no appreciable after-images and thus are no more than limits. As for the muscular tension, it appears to him to vary in the way of waning from the initial height to zero and of then waxing (in representation). But he observes that this twofold process, when occupying the foreground of consciousness, appears to undergo a certain retardation—with the obvious result of enabling it (in the experimental case) to fill up somewhat longer intervals than it else, naturally, would. For the rest, when the interval is not too great to be beyond the compass of any possible drawing-out of the whole process, he finds that now one now another combination of the two stages (of waning and waxing) may be employed to span it. All that is necessary is, that whatever combination served to fill up the given 'normal time' be reproduced (in imagination) as exactly as may be for the 'comparison-time' that has to be equated.

So far the general scheme ; but, to understand how the strains can have their waning and waxing thus variously combined, note must be taken of the precise muscular acts involved. While it is matter of common experience how directly sounds, beyond all other sensations, pass over into movement of limbs, it is rather in action of head, neck and shoulders, with related parts, that the attentive attitude of listening consists, joined of course, with tension of the muscles inside the ear itself. But, in watching himself when on the strain to get a measure of time-interval, Münsterberg is most of all struck with the part played by the great periodic function of breathing. So massive as this is in its alternating rhythm of inspiration and expiration, he finds it cannot proceed in either phase without modifying the state of tension in which the connected muscular parts happen to be. If the strain of attentive hearing is in process of being relaxed, the waning is helped by expiration ; on the other hand, the gathering tension of expectancy comes to a head the more readily as the breath is drawn in. The effect of either kind, he gives reason for supposing, is wrought through the special nerve-centre of respiration ; but, however this may be, the breathing-rhythm is, in his experience, so dominant a factor in all attempts at experimental estimation of time that the fact of its having been overlooked by previous investigators is, for him, enough to render all their results of no account. If it so inevitably and powerfully affects the varying strain of the attentive attitude, the very first thing to be considered would seem to be the precise stage of the breathing-process from which the experimental reckoning begins to be made. But its part in the work of time-estimation does not stop there. In the case of relatively longer intervals—that is to say, such as are beyond the span, however drawn out, of the twofold process of waning and waxing tension directly involved in the listening attitude—the breathing-rhythm may itself become the chief, if not the only, means of time-measurement. In that case, Münsterberg finds it subject to a variety of modifications. First, the respiratory act appears to him, like other muscular tensions, to get drawn out when consciously attended to ; thus acquiring more span or measuring-power within the single period. Then, while normally there is a pause between the end of expiration and the beginning of inspiration (amounting to about a third of the whole breathing-period), he observes that this is apt, in the experimental attitude, to drop out ; with the result that the function, become thus continuous, gains increased efficiency for measurement. Again, he notes himself as at times actively forcing both inspiration and expiration (the latter of which, in normal circumstances, is left to simple elasticity of lung), thus making several short respirations within the regular period of one ; the accommodation being obviously directed to the procurement of uniformity of breathing-phase between the two time-intervals. And, once

more, in the case of such times as surpass the possible duration of the most protracted single act of respiration, he remarks the tendency to keep up a certain convenient rhythm of breathing, which, though it never passes into the form of numerical calculation, gives the most effective means of comparative estimate.

After such careful reckoning with his experience under the special conditions, Münsterberg proceeds to argue that the variety of our common judgments of the lapse of time depends, no less than in the experimental case, upon the degree to which expectant strain (ultimately muscular) is present with the impressions of any kind that are being received; and, again, that the facts of time-memory, even when this illusorily reverses the original judgment, in no way conflict with the view he has obtained of the actual factors involved in time-measurement. Next, by close examination of what is expressed or implied in the records of previous experiments, he is led to the conclusion that the true reason of the marked discrepancy of numerical results is to be sought in their authors' disregard of the precise factors involved, more especially the all-dominating breath-rhythm. If the periodicity of some kind noted by all the Leipsic experimenters in their time-estimation points to the implication of such a periodic factor as the respiratory function, then obviously the (overlooked) differences of breathing-phase in which by constitutional habit or by chance they made their estimates may well account for their discrepant figures. Both arguments—too pertinent to the matter in hand to be fairly called digressions—are very acutely, and more than plausibly, worked out by Münsterberg. But, attention having been thus drawn to one of the most interesting parts of his whole memoir (pp. 43-54), it is of more urgency here not to omit following him into the concluding section (pp. 54-68) where the results of his subjective analysis are brought to the test of experiment.

It is but a small part of the whole mass of time-experiments he has made that Münsterberg cares to give even the most summary account of. Following in general the Leipsic manner of experiment at its highest development, but improving upon it by reduction of the amount of motor reaction called for in the estimator (an important matter in such delicate work), and by having the 'comparison-time' closed as well as begun, like the 'normal time,' with sound of hammer-stroke (thus equalising the conditions of expectancy as never before), he made a very large number of trials with another person as estimator, on the line of the earlier experiments, going up from 1 to 5 sec. intervals, by $\frac{1}{4}$ sec. steps. All these he leaves aside, as of no more real value than the Leipsic results; any periodic law that could be got out of the figures having no validity so long as the determining factors in the estimator's consciousness are not accurately assigned. He gives instead, in compendious form, only the results of some other series of experiments with himself as estimator; an assistant being employed

to fix the intervals for which equation was sought. These were advisedly taken of a length, from 6 to 60 sec., such that the subjective conditions could be marked with some certainty.

In the first series, the 'comparison-time' was estimated without pause on completion of the 'normal time' propounded, but under these different circumstances. (1) It was left to the assistant to propound intervals in pell-mell order (*e.g.*, 15, 7, 22, 18, 24. . . sec.) without reference to Münsterberg's breathing, who in turn made his comparative estimate without altering in any way the regularity of its natural rhythm. (2) The assistant was required to keep close watch and propound only such intervals (though again in pell-mell order and without too violent contrasts, *e.g.*, 11·5, 14, 7·2, 16·4, 21·6. . . sec.) as should make Münsterberg begin his estimate at precisely the same stage of the whole breathing-process as he was in at beginning of the given 'normal time'. No 'constant error' (*i.e.*, of over-estimation or under-estimation) appearing after many trials, all the errors, in percentage relatively to the 'normal time,' were put together for (1) and (2) separately; and, then calculating out the mean error, Münsterberg found this to be as much as 10·7 per cent. for (1) and as little as 2·9 for (2). A very marked difference, truly.

In a second double set of experiments, the same difference of circumstances was repeated, except that the estimate had now to be made after a pause varying from 1 to 60 sec.; that is to say, instead of using the second stroke, which closed the 'normal time,' as initial limit of the 'comparison-time,' this was given by a third stroke. Here (1), where no regard was had to breathing-rhythm, the mean error rose (from 10·7) to 24 per cent.; but (2), where care was taken to have the comparative estimate begun, as far as possible, at the same respiratory stage with the 'normal time,' the mean error rose (from 2·9) only to 5·3 per cent. A not less remarkable result.

In face of these figures, if they are even approximately confirmed by other experimenters, it seems impossible to doubt that breathing has a prerogative position among the sense-factors concerned in the estimation of short time-intervals; and it is much to be hoped that the whole subject will be taken up again, at Leipsic or elsewhere, with express reference to Münsterberg's path-breaking analysis or at least not without similar attempt at prior determination of the precise content of the time-experience which it is sought to measure. But, in itself, breathing is of course only one among other muscular factors involved, and the general outcome of the novel research, so far as yet carried, is to bring impressively into view the import of muscular activity for psychological explanation. A subsidiary series of experiments, too slightly indicated, goes some way to supplying the confirmation that comes by negative instance. Münsterberg tried time-comparison by means of a set of voluntary tensions and relaxations (not said what) slowly carried out so as to be independent of

the breathing-rhythm; and here the estimate was still good and sure. But when he proceeded to estimate for intervals between 3 and 10 sec. without regard to (felt) tensions of any kind, not all his foregone practice in time-comparison was of any avail to save him from such arbitrary 'shots' as taking 12 sec. to be equal to 4 or, again, 3 to 9. If the facts were so, their significance seems greater than Münsterberg cares to claim against the possible objection that among the subjective data disregarded may have been the very 'Time-sense' whose existence is in question. The objection cannot well be urged, since the supposed 'Time-sense,' taken to be a direct activity of pure consciousness, cannot properly be expressed in terms of the (felt) muscular tensions and relaxations of the experiment.

What Münsterberg may in any case be fairly credited with having accomplished, is to bring the conscious activity of time-estimation into relation, hardly before suspected, with a definite basis of sense-experience. The name 'Time-sense' thus has more justification than it ever got from its inventors, for whom it has marked only the apparent immediacy of time-apprehension. But yet, as we do not properly speak of a 'Space-sense' except to indicate that there are sensory elements necessarily involved in all space-apprehension, so should it be also with 'Time-sense,' whenever the psychological account is finally made up of which he has here done a good deal more than give the first sketch. The memoir, as a whole, seems to me at once so interesting and important that I have preferred to use the available space for a somewhat full summary of it, rather than for critical remark. Question might be raised at a good many points. For example, it is not clear how the author can psychophysically interpret the act (on which he lays stress) of attending to the waning and waxing of the muscular tensions, which are for him the means of attending to the limiting sounds of the experiment. But whatever other difficulties might be noted in the research, whether of principle or detail, they leave untouched its character of rare suggestiveness.

VI.—DISCUSSION.

MR. SPENCER'S DERIVATION OF SPACE.

By Professor JOHN WATSON.

In the last number of *MIND* Mr. Spencer expresses his indignation against certain of his critics whom he calls "Kantists," or "Neo-Kantists". The "Neo-Kantist," he declares, systematically avoids real issues, "deliberately ignores" the arguments of Mr. Spencer, and pays no heed to the "six objections" and "four impossibilities of thought" shown to be against his own doctrine. Add to this that these arts are employed in support of the superstition of the "production of mind" by "supernatural endowment," and it is not surprising that Mr. Spencer, after discharging a Parthian arrow, has ridden off and left him to his fate.

With the "Neo-Kantist" of Mr. Spencer's imagination I have no acquaintance, but as Mr. Spencer classes me under that name, perhaps I may be allowed to say a word in his defence. I should like to show, if I could, that Mr. Spencer has been a little too severe.

Mr. Spencer complains that, instead of defending the Kantian doctrine against his attack, the "Neo-Kantists" have made a counter attack, their aim being to avoid an issue which they could not meet (*MIND*, No. 59, p. 306). I should be inclined to give a somewhat different explanation. Two good reasons may be suggested for not dealing with Mr. Spencer's "six objections" and "four impossibilities of thought". In the first place, the "Neo-Kantists" do not hold space to be a form of perception as distinguished from thought, nor do they accept Kant's doctrine of the subjectivity of space. Under these circumstances Mr. Spencer's heavy battery did not affect them so much as might have been expected. But, secondly and mainly, the answer to Mr. Spencer's "six objections" and "four impossibilities of thought" could only have consisted in showing that in important points—one or two of which will be indicated in the sequel—Mr. Spencer has misconceived the argument of Kant. I venture to suggest these reasons for the neglect by the "Neo-Kantists" of Mr. Spencer's "six objections" and "four impossibilities of thought". These at least were my reasons, whatever may have been the motives of my fellow-culprits. Mr. Spencer will, I hope, allow them to have weight, and to be on the whole more creditable to human nature than the one he has suggested.

My next offence is one, the responsibility for which, un-

fortunately for me, I must bear alone. It seems that, in my *Kant and his English Critics*, p. 262, I "deliberately ignored" the chapters in Mr. Spencer's *Psychology* in which his view of space was "justified" in 42 pages, "preferring" to base my criticism "on a brief summary" of 3 pages (*MIND*, No. 59, p. 306). Now, here again I must put in a plea for myself. I can assure Mr. Spencer that my motive for "ignoring" his "justification" was not what he supposed it to have been. What was to be explained was the consciousness of co-existence or the mutual externality of every part of the extended world, and Mr. Spencer's "summary" showed that he believed it to be derivable from discontinuous individual feelings as simultaneous and successive. I endeavoured to show that such a derivation is from the nature of the case impossible: (1) because individual feelings cannot account for any knowledge whatever, and, (2) because even if the consciousness of feelings as simultaneous and successive could be derived from individual feelings, we should be as far as ever from accounting for the consciousness of co-existence. It was therefore unnecessary to follow Mr. Spencer in his elaborate attempt, extending over 42 pages, to "build up a stable universe out of evanescent sensations," as I ventured to put it. But as Mr. Spencer has misunderstood my reticence, and has taken the pains to restate his view "in a briefer and partly different way," courtesy seems to demand that I should explain why I am not convinced even by this new effort to enlighten my ignorance.

The fundamental position of Transcendentalism—or Idealism, as I should prefer to call it—is, that the universe is intelligible, and that man in virtue of his intelligence is capable of grasping it in its essential nature. It therefore rejects as unmeaning the doctrine of Mr. Spencer that we know reality to be unknowable. Idealism further maintains that nothing exists for knowledge apart from thought, *i.e.*, apart from the activity by which the subject discriminates the various elements implied in reality, and combines them in the unity of one world. The ultimate principle of unity it finds in self-conscious intelligence, by reference to which it interprets all the other phases or elements of reality. It does not deny the value of the results obtained by bringing existence under such categories or forms of unity as space, time, matter, motion and energy, but it affirms that, unless these results are reinterpreted from the higher point of view of intelligence, we have a philosophy that breaks down in self-contradiction. Idealism also refuses to admit that existence can be explained by showing that in the order of time the inorganic precedes the organic, as sensation precedes thought. What precedes is, speaking generally, an imperfect and inadequate phase of what follows. The lower animals do not reflect the world better than man, but worse. That man is descended from some lower form of being, Idealism does not dispute, nor does it deny that the human race, like the individuals who now come

into existence, passes from one phase of existence to another. The idealist has no difficulty in admitting that man is at first a purely sensitive being. But, granting sensation to precede that first consciousness of what sensation means which may be called perception, as perception is followed by reflection, he maintains that in perception the true nature of existence is exhibited more perfectly than in sensation, in reflection more perfectly than perception. An idealism of this type does not hold the "hypothesis of pre-determined forms of thought"; what it maintains is, that in the development of man there emerges out of sensation a consciousness of the meaning of sensation, and that in this consciousness, and in this consciousness alone, reality is recognised to imply in all its aspects and changes certain fixed forms of relation or unity. Of these forms the simplest is that of space or the mutual externality of perceptible objects. In perception the consciousness of space has not yet assumed the reflective form which it has for the mathematician, and for every one who makes it a direct object of attention, but it is implied in the perception of objects as outside of one another. Because it is a form of relation, space is a possible object only for a thinking, as distinguished from a sensitive, subject. Hence any attempt to derive space from sensation alone is an attempt to identify what by definition is individual and fleeting with what is universal and permanent; it is, in fact, an attempt to deny that there has been any evolution. For evolution is not simply the transition from one phase of existence to another, but a development from lower to higher. This distinction between succession and evolution Mr. Spencer seems to me to overlook. He thinks that our consciousness of space has been "composed out of units of thought which were different and discontinuous"; in other words, that because perception has been preceded by sensation and has emerged from it, perception is in its essence identical with sensation. Now, surely one may admit that man has passed through a stage in which intelligent experience as yet was not, without admitting that intelligent experience may be explained without intelligence.

Idealism has no quarrel with those who point out that the individual man is sensitive before he is conscious, or even that by the previous development of the race he is now capable of rising from the sensitive to the conscious stage more rapidly than his less fortunate remote ancestor; but it denies that the slowness or rapidity of the development affects the distinction between consciousness and sensation as higher and lower. Perhaps an illustration may make the matter plain. Mr. Spencer contends (p. 322), that his own derivation of space combines the relative truth of the "Experience-hypothesis in its original form," with the relative truth of the "Kantian hypothesis"; in other words, that his theory has been evolved out of the less perfect theories of his predecessors. Would he therefore say that it is neither

new nor true? Would he not rather say that it has brought into clear consciousness what was previously held in a confused and inadequate way? Similarly, idealism maintains that the nature of space is not affected by the time when the individual comes to the consciousness of it. Space is what it is, whether we suppose it to be present to the individual at the moment of his birth or not till the moment of his death, just as even a death-bed conversion to Mr. Spencer's theory of space would in his view be a real progress from the false to the true, or at least from the inadequate to the adequate.

Mr. Spencer asks (p. 308) if I "think that at the moment the newly-born infant first closes its lips round the nipple, it knows its sensations in connexion with their respective universals". I certainly do not, nor do I think the "newly-born infant" has any "intelligent experience". In asking such a question, Mr. Spencer shows that he misapprehends the idealistic view of space in two ways. In the first place, idealism does not hold that knowledge implies the reflective consciousness of universals as such. The consciousness of space, as it is dealt with by the mathematician, belongs neither to the stage of sensation, nor to the stage of perception, but to the stage of reflection, which many persons never reach at all. To show that a man has no reflection or abstract consciousness of space does not show that he has no perceptive consciousness of it. Perception, as we understand it, is the consciousness of objectivity, *i.e.*, of fixed or permanent relations, but it need not involve the explicit consciousness of any one of these relations held before the mind as a separate object of attention. Even, therefore, if it were maintained that the "newly-born infant" had a perceptive consciousness of space, it would not follow that it "knows its sensations in connexion with their respective universals". But, secondly, we do not hold that every human being at every stage in its development has even a *perceptive* consciousness of an objective world. We have no fault to find with Mr. Spencer's statement that "Knowledge slowly emerges" out of what is not Knowledge, but we contend that it is not Knowledge until it emerges, and that it is therefore vain to attempt its explanation by what is not Knowledge. Just as we deny that a mineral is alive and grows, and that a plant is sensitive, so we deny that a sensitive being is conscious. That consciousness has developed out of sensation we admit, but we maintain that it is a *development* and not a mere *transition*, and hence that in consciousness is to be found the key to the nature of reality as including sensation, not in sensation the key to consciousness. I do not know that I can make my meaning clear in any better way than by stating my objections to Mr. Spencer's derivation of space as expounded in his recent article. In doing so I shall pass over his misleading analogies from mathematics, physics, and other sciences—not because I wish to gain a controversial advantage, but because a doctrine which is fundamentally

unsound cannot be established by any number of analogies however ingenious and plausible they may be.

In the course of his attempt to show how our consciousness of space has originated, Mr. Spencer will be found, I think, to make the following assumptions: (1), that the occurrence of a sensation is the same thing as the consciousness that a sensation has occurred; (2), that the conscious subject is primarily aware only of his own feelings as successive or simultaneous; (3), that the consciousness of simultaneous feelings is identical with the consciousness of co-existent positions. Each of these three assumptions seems to me to be unwarrantable, and therefore to vitiate the whole derivation.

To aid us in imagining the process by which man has reached the consciousness of space, Mr. Spencer conducts us into a dark room, and bids us exclude from our consciousness all the "space-suggestions implied by visual and tactual perceptions". What remains are "those sensations of changing muscular tension which accompany movements of the limbs, and which, in the absence of space-knowledge, are still known as continuous slight efforts, varying according to the muscles contracted and the degrees of their contraction". There is also "experience of the ability to produce and reproduce those slight serial feelings without check" (p. 315). Now, let us be perfectly clear as to what Mr. Spencer here supposes the condition of the undeveloped individual to be. He has no consciousness of space. This I understand to mean, not merely that he has never made space a separate object of attention, but that he is unconscious of outness or mutually external positions. Such a being would have no consciousness of "accompanying movements of the limbs," which evidently imply the consciousness of externality of parts and of motion. Nor would he be conscious of certain sensations as those of "changing muscular tension," for this also would involve the consciousness of externality and motion. We must therefore suppose the primitive consciousness to be simply that of vague feelings occurring the one after the other. To a thinking being contemplating the individual in question, it would be apparent that he was the subject of "those sensations of changing muscular tension which accompany movements of the limbs," but the subject himself could not have this highly complex form of consciousness. I understand Mr. Spencer to admit this when he tells us that "an impression of resistance. . . . may be conceived as occurring in a rudimentary consciousness without any idea of a causing object" (p. 309). Mr. Spencer assumes, however, that the subject in question would be conscious of certain sensations as serial; in other words, he would distinguish one sensation from another by its degree, and would be conscious of these varying sensations as following one another. That is to say, Mr. Spencer assumes that the feeling subject is primitively conscious of the degree and the succession of his sensations. I deny Mr. Spencer's right to

make that assumption. If the primitive subject is conscious of varying sensations (or identical sensations, if Mr. Spencer prefers it) as serial, and of these sensations as belonging to himself, the single subject which has them, he is not a purely sensitive but a thinking consciousness. If, on the other hand, the subject does not discriminate his sensations as varying and as serial he is not conscious that they have degree or are serial, much less is he conscious of himself as the single subject which experiences all alike and unites them in one consciousness. Now, Mr. Spencer says nothing to show that he supposes himself to be dealing with a thinking as distinguished from a sensitive subject, and it is for this reason that he ostensibly derives the consciousness of space from "discontinuous units," when in reality he is surreptitiously introducing relations of thought. I hope it will not be supposed that I am denying that the subject is primarily sensitive and not perceptive, or that without sensations of muscular effort we should not have the consciousness of space: what I am denying is that the purely sensitive subject is aware of his sensation as having degree, as occurring in a series, and as belonging to his single identical self. A purely sensitive subject can only be the medium of the occurrence of individual feelings, and until he emerges from the sensitive stage and becomes conscious of what occurs within himself, he cannot be aware of having experienced a series of sensations varying in degree. Mr. Spencer has, therefore, at the very threshold of his reconstruction of the process by which the consciousness of space is supposed to be derived, made the first of the assumptions mentioned above, *viz.*, that the occurrence of a sensation is the same thing as the consciousness of that occurrence, *i.e.*, that sensation and perception are identical. Having done so, it is only natural for him to imagine that he has derived perception from sensation, *i.e.*, that perception is identical with sensation. When relations of thought are already assumed, they do not need to be explained.

And not only does Mr. Spencer assume that a series of feelings is the same thing as the consciousness on the part of the individual that he has been the subject of such a series, but he also assumes that the primary consciousness of the individual is only of his own states as successive. Now, granting that a sensitive subject is not only the medium of sensations but is conscious of being such a medium, why should it be assumed that he is primarily conscious of succession but not of externality? For no other reason, I believe, than the unfounded assumption that there is a direct consciousness on the part of the subject only of his own subjective states, while the consciousness of all that is extended is indirect. Thus Mr. Spencer's derivation of space is vitiated, not only by his failure to distinguish between the occurrence of sensations and the consciousness of their occurrence, but by that absolute opposition of internal and external which has come down from the imperfect metaphysic of Locke.

Let Mr. Spencer discard the two assumptions to which I have drawn attention, let him exclude from his data the consciousness of degree and succession as well as of externality, and get rid of the unwarrantable opposition of internal states and external objects—which, even if it were true, could not exist for a purely sensitive subject—and I think he will find the attempt to derive the consciousness of space from “discontinuous units” not so easy as he has made it for himself.

But I have not yet done with Mr. Spencer's assumptions. It is plainly assumed by him that the primitive subject is able to distinguish different series of sensations and yet to identify them as regards their content, for he speaks of “the ability to produce and reproduce slight serial feelings without check”. The primitive subject, then, is not only the medium of different series of sensations, but is conscious of having experienced such different series. Need it be said that such a subject is not merely sensitive, but, in the sense already explained, perceptive?

It is unnecessary to follow Mr. Spencer through the whole of his attempted derivation of space from individual feelings. At each step he introduces more complex relations of thought. Thus he exhibits his sensitive subject as becoming conscious of a double series of sensations, and so as becoming aware that they are simultaneous. That a subject which thinks its sensations becomes conscious of distinct series of feelings as simultaneous is certainly true, but it is not true that a purely sensitive subject would know the series either as distinct or as simultaneous. Nor would such a subject be aware of a series of feelings as “reversible,” and therefore it would never attain to a “general experience”.

Let us now see how Mr. Spencer effects the *saltus* from simultaneity to co-existence. Taking hold of a book, the subject experiences two simultaneous, or rather rapidly successive, sensations of touch. In a previous experience two such sensations were “separated by serial feelings of effort occupying an interval of time”. Further, the two sensations simultaneously received may occur in succession with an intervening reversible series of sensations of touch and tension, or of tension only. The subject now becomes aware that what occurs in succession may also occur simultaneously; hence the time-element drops out, and he becomes conscious of co-existence. Here, then, we have the consciousness “out of which the consciousness of space is to be built” (pp. 316-17).

Does Mr. Spencer seriously mean to say that the consciousness of sensations as simultaneous is identical with the consciousness of co-existent position? Or does he rather mean that the dropping out of the “time-element” altogether is equivalent to the consciousness of co-existence? If the latter, is it not obvious that the subject would simply be left with the consciousness of discrete sensations as differing in intensity and quality, without

being conscious of co-existence? The absence of the "time-element" or that which answers to the "time-element" is not equivalent to the presence of the space-element or that which answers to the space-element. I think, however, that by the disappearance of the "time-element" Mr. Spencer means what he curiously calls "two consciousnesses which co-exist," that is, I presume, the consciousness of two simultaneous feelings. But two simultaneous feelings are not external to each other in the sense in which one position is external to another. If I hear two sounds simultaneously, does that prove them to occupy mutually external positions? If so, they must be in space. Now, Mr. Spencer makes it a special charge against the "Neo-Kantists" that they imagine space to be a form of all perceptions, and therefore of sounds and odours. In point of fact the "Neo-Kantists" do nothing of the kind, but the charge shows that Mr. Spencer, when he is not attempting to derive space from individual feelings, is quite aware that the consciousness of simultaneous feelings cannot be identified with the consciousness of co-existent positions. After all his elaborate scaffolding, therefore, Mr. Spencer has not accounted for space at all, but has simply assumed it. I do not think that his failure is due to any want of ingenuity; I believe it to be the inevitable result of the mistaken attempt to explain the perception of permanent objects apart from the activity of thought as interpreting the contents of the sensitive subject thus so gradually coming to a more and more complete consciousness of what existence is and means. Mr. Spencer and others have done good service in drawing attention to certain outward aspects of the evolution of mind, but no psychology can be adequate which does not recognise that perception is not the mere occurrence of transient feelings, but the first step in that recognition of the true nature of reality which culminates in the comprehension of the world as a single organic unity of which the source and explanation is intelligence. Mr. Spencer admits that his interpretation "takes for granted the existence of objective space, or rather of some matrix of phenomena to which our consciousness of space corresponds" (p. 323). Precisely; the world is by Mr. Spencer assumed to be independent of mind and to act mechanically upon it. To this view I have stated my objections at length in the tenth chapter of my book, and I need not repeat them here: I simply call attention to the fact that, tried by the test of its ability to explain intelligible reality—which is the "criterion of truth" that Mr. Spencer taunts me with refusing to give (p. 307)—Mr. Spencer's interpretation of space breaks down in the self-contradiction that we know space to be unknowable. From this self-contradiction there is no escape but in the doctrine that the real world reveals itself in self-conscious intelligence.

DR. PIKLER ON THE COGNITION OF PHYSICAL REALITY.

By G. F. STOUT.

Dr. Pikler has published in *MIND* No. 59, and also in a postscript to his book *The Psychology of the Belief in Objective Existence*, a hostile criticism of my article on "The Genesis of the Cognition of Physical Reality," which appeared in *MIND* No. 57. His leading motive in attacking me is to defend Mill's theory of permanent possibilities against my objections. Unfortunately, he does not seem to take account of the exact point in dispute. He appears to assume that I have called in question the correctness of the doctrine of "Possible Presentations," considered as an analysis of the nature of matter from the point of view of metaphysical reflexion. This I have not done, because I had no occasion to do so. My sole aim was to trace the genesis of the presentation of physical reality as it appears to the ordinary consciousness: not as it may be modified, and perhaps rectified, by the reflective criticism of this or that philosopher. Now, what I have to urge against Mill is simply and solely, that he has confounded his own philosophical view of physical reality with the view which men ordinarily take when they are not in a philosophical mood. His error is analogous to that of an astronomer who should suppose that to the ordinary observer the sun appears to remain unmoved while the earth moves, because this appearance would be in keeping with astronomical truth. I have indicated in my article—though, perhaps, not with adequate emphasis—that my criticism of Mill had reference to this special question, and to this only. If I had raised any other, I should merely have involved myself in a useless digression. Dr. Pikler's misapprehension of my meaning has led him to require from me a proof that the theory of "Possible Presentations" is internally inconsistent or otherwise untenable as a metaphysical account of the nature of matter. Now, I never had occasion to show that Mill's theory was inconsistent with itself. My whole aim was to exhibit its disagreement with the uncritical view of common sense. I have indicated what I take to be the points of disagreement. Whether they are so or not, must, in the last appeal, be decided by the general consensus of those who have sufficient philosophic training to understand the question.

Let us now turn to the special objections urged against me by Dr. Pikler. I have turned against Mill the saying of Leibniz that a "naked possibility is nothing," taking care to show that physical things are, according to Mill's account of them, in the strictest sense "naked possibilities". Dr. Pikler replies that possible presentations belong to a "certain class of actualities". They are, he says, actual possibilities. It seems needless to

point out that to reason in this way is merely to juggle with words. The mental representation of a possibility is an actual existence, just as the mental representation of a fiction is. But the possibility itself is not on that account an actuality any more than the fiction is a fact. The possibility may, by a strained use of language, be said to be actual, if certain actual conditions exist which only need to be supplemented by certain others in order to produce its realisation. Thus, it would not be altogether nonsense to say that an acorn is the actual possibility of an oak. But Mill's possibilities are not actual in this sense. Are they so in any sense? I can think of one only, and this borders closely on nonsense. We may, perhaps, say that a possibility is actual, because it actually is a possibility, just as we may say that an untruth is a true untruth, because it is truly untrue. If this be the kind of actuality which Dr. Pikler would vindicate for the "permanent possibilities of sensation," I certainly have no wish to gainsay the claim. I claim for myself, however, a similar licence in the use of words. He says that physical things are, according to Mill, actual possibilities, *i.e.*, actually possibilities. I say that they are, according to Mill, actual nothings, *i.e.*, actually nothing. In saying so I am not contradicting Dr. Pikler: I am asserting precisely the same thing.

So far, I have endeavoured to meet Dr. Pikler on his own ground. I must now point out that the issue raised by him has no decided bearing on the only question which I had in view when I wrote my article. Dr. Pikler may, if he so chooses, call possibilities actualities. He has still to show that the kind of actual existence which alone can be attributed to a naked possibility is also the kind of actual existence which common sense ascribes to physical things. Now, the utmost that he or I can do in this matter is to state what we find to be our own experience, and to appeal for corroboration to the experience of others. So far as I myself am concerned, I can only say that when I am directly thinking of physical things, and not merely of metaphysical theories concerning them, I represent them as possessing, independently of me and of other finite minds, the same kind of actual existence which belongs to a thought while I am thinking it, or to a sensation while I am experiencing it. Dr. Pikler gives evidence apparently opposed to mine. But there seems to be a flaw in his method of self-observation. He takes notice of his mental attitude in considering metaphysical theories of matter, rather than in considering material things themselves. He says: "I, for my part, find nothing in my consciousness diametrically opposed to Mill's account. On the contrary, when, ignorant still of philosophy, I first heard these doctrines, they appeared to me as irresistibly true." I can readily believe Dr. Pikler. My own experience on first reading Mill was precisely the same. But would Dr. Pikler conclude, because he was easily and irresistibly convinced by the first treatise on Astronomy which he read, that,

therefore, he naturally thinks of the earth as moving and of the sun as motionless? By parity of reasoning, he ought to do so.

Turning now from Dr. Pikler and myself to other witnesses, I shall adduce two whom he evidently respects, Berkeley and Hume. Berkeley regarded his own doctrine as an assertion of the view of common sense in opposition to the figments of philosophers. But according to him the actual existence of material things by no means consists in the mere possibility of their being presented. It consists in his opinion in their actual presentation, (1) to finite minds, (2) to the Divine Mind. Hume's well-known deliverance concerning the belief of the ploughboy as to the continued existence of his plough, is all the more impressive, because Hume held the ploughboy to be under an illusion. In my article I referred to certain phrases used by Mill, which seemed to me to show that he himself did not always think of physical things as mere possibilities. I now again appeal to the reader to consider this point. Is it likely that any one should speak of a possibility as changing or as occasioning change in other possibilities, unless he for the moment regarded it as more than a naked possibility? Dr. Pikler substitutes other words for those of Mill, more consonant with the general tenor of his doctrine. He fails to see that my contention is entirely based on the particular form of expression which Mill has permitted himself to employ. I explicitly say in my article:—"This criticism applies rather to Mill's terminology than to the real import of his doctrine. The essence of his theory is that physical reality can be shown by analysis to consist in the fixity of the order in which actual sensations occur, and in which possible sensations would occur if we actually experienced them." This explanation is identical with Dr. Pikler's. Against Mill's theory, thus formulated, I bring forward the Kantian distinction between "objective judgments" and "judgments of perception," and I quote the following familiar passage:—"The apprehension of the manifold in the phenomenal appearance of a house, that stands before us, is successive. The question then arises whether the manifold of the house itself be successive, which, of course, no one would admit." Dr. Pikler observes: "This objection can be easily disposed of. That the different parts of the house are co-existent does not mean, according to Mill's theory, that there is a possibility of perceiving them simultaneously, but it means that there are a number of different simultaneous possibilities of presentations from amongst which the individual may select any at will." I agree with Dr. Pikler that this is what Mill meant. I never supposed him to mean anything else. The point of my objection will be best elucidated by an illustration. I can at this moment utter aloud any letter of the alphabet I choose. The sounds of the several letters are for me "simultaneous possibilities of presentations from amongst which I can select any at will". Why, then, do I not regard these sounds as co-existing with each other?

Why does the possibility of series of successive sensations which may at will be experienced in this or that order give rise in the one case to the presentation of physical co-existence and not in the other?

I have now fully dealt with that part of Dr. Pikler's postscript which bears on my treatment of Mill's theory. Something must next be said in reply to his criticism of my own. I am here compelled to be brief. But I hope, at no very distant date, to have an opportunity of considering more at length Dr. Pikler's strictures on myself, and also his own positive contribution to the "Psychology of the Belief in Objective Existence," which I value highly.

I am greatly surprised by my critic's remarks on that section of my paper which is entitled "Antithesis of Mental Activity and Passivity". Why does he say that I regard it as the most essential part of my theory? In the first draft of my paper, which was read before the Aristotelian Society, I dismissed the point with a brief and incidental notice. I did so because I judged it needless to dwell on a topic with which every psychologist might be supposed to be familiar. I afterwards inserted § 5 in my article because I thought that I could state the common doctrine in a somewhat more comprehensive and accurate form than the ordinary one. But, in substance, there is nothing in § 5 which is not very old and very well known. Yet, according to Dr. Pikler, the contrast of mental activity and mental passivity is the discovery only of a "few more modern psychologists". It is, on the contrary, to be found in the works of psychologists of all ages from Plato to H. Spencer. It is at bottom identical with Spencer's antithesis between the "vivid order" and the "faint". It was in Plato's thoughts when he described the vehement influx of sensations disturbing the harmonious motion of the circles of the Same and of the Other. It is more or less clearly expressed in Descartes, Locke, Berkeley and, I believe, in Hume. I must here content myself with a single quotation from Locke: "When my eyes are shut or windows fast I can at pleasure recall to my mind the ideas of light or the sun, . . . so I can at pleasure lay by that idea and take into my view that of the smell of a rose or taste of sugar. But if I turn my eyes at noon towards the sun, I cannot avoid the ideas which the light or sun then produces in me. So that there is a manifest difference between the ideas laid up in my memory . . . and those which force themselves upon me and I cannot avoid having. And, therefore, it must be some exterior cause . . . that produces these ideas in my mind whether I will or no." We may, I think, safely affirm that the antithesis of mental activity and passivity is neither obscure in itself nor neglected by psychologists. So much for the first two facts which, according to Dr. Pikler, are sufficient to refute my view on this particular point. Dr. Pikler's third fact really is a fact—or, rather, it

is two facts. The first of these is that interruption of the flow of ideas is caused by organic sensations and by sudden flashes of thought, as well as by sense-impressions arising from objects external to the body. As regards sudden flashes of thought, I reply that when a thought emerges which is disconnected with the immediately precedent train of ideas there is commonly a felt continuity between its appearance and some previous mental process. If, for example, after I have endeavoured unsuccessfully to recollect a name, the name occurs to me of itself while I am thinking of something else, I then mentally connect the emergence of the name into consciousness with my previous effort to recollect it. It must, however, be admitted that some cases do not admit of this explanation. But these cases are really in my favour. When there is no felt continuity between the emergence of ideas into consciousness and previous mental process, there is a disposition to refer them to the operation of some kind of external agency, *e.g.*, spirits, demons or divine inspiration. This statement is abundantly borne out by pathological evidence. Interruptions of the flow of ideas arising from organic sensations are also in general referred to an agency external to the mind affected. Ordinary variations of the cœnæsthesia are attributed to ordinary organic changes, *e.g.*, in the state of the stomach, liver, &c. Extraordinary variations, such as occur in certain pathological cases, are attributed to extraordinary causes, and so give rise to many of the illusions and delusions of the insane. The other division of Dr. Pikler's twofold fact is simply that the order of impressions has a certain regularity as well as the order of ideas. What of that? The beating of a drum may occasion a very regular series of sensations. But it may nevertheless grievously interrupt the inward flow of ideas.

Finally, I have to notice an alleged flaw, which according to Dr. Pikler pervades my whole treatment of the genesis of the presentation of physical reality. The general nature of the objection will appear from the following quotation. "According to Mr. Stout, the child at that age (as soon as it begins to employ coherent sentences) must have got beyond this observation, generalisation and inference;—'An agency operates within me in orderly and normal fashion. It is sometimes interrupted. When this happens, it is the effect of an external agency.' . . . This cannot be correct. In point of fact such observation and generalisation cannot really be performed by the child." The same argument, *mutatis mutandis*, is urged by Dr. Pikler, against every part of my work which he has thought good to notice. In reply, I quote a passage from Brown who long ago anticipated and answered the objection:—"I am aware that the application to an infant of a process of reasoning expressed in terms of such grave and formal philosophic nomenclature has some chance of appearing ridiculous. But the reasoning itself is

very different from the terms employed to express it, and is truly as simple and natural as the terms which our language obliges us to employ in expressing it are abstract and artificial. The infant has the reasoning, but not the terms. He does not form the proposition as universal and applicable to cases which have not yet existed; but he feels it in every particular case as it occurs." Brown's teaching on this point is illustrated and corroborated by the results of modern psychology. Dr. Pikler must surely know how complex are the processes involved in the visual perception of space-relations, as they are analysed and formulated in such books as Wundt's *Physiologische Psychologie*. Yet these processes take place in the minds of children. From this point of view, the workings of a child's mind are very complicated.

I conclude with a personal remonstrance. Why does Dr. Pikler call me a realist? In general, I dislike being labelled, and I have a special aversion to this particular label. It has no meaning so far as I can discover. Bishop Berkeley is commonly said to be an idealist, but he is a realist if I am one.

VII.—CRITICAL NOTICES.

A Text-Book of Mental Diseases : with special reference to the Pathological Aspects of Insanity. By W. BEVAN LEWIS, Medical Director, West Riding Asylum, &c. With Illustrations in the Text, Charts, and 18 Lithographed Plates. London : C. Griffin & Co., 1889. Pp. xxii., 552.

Sanity and Insanity. By CHARLES MERCIER, M.B. ("Contemporary Science Series."). London : Walter Scott, 1890. Pp. xix., 395.

These two books mark an important advance in the positive study of insanity. The lunatic, too long outcast from science as from society, is, like every other abnormality, coming gradually into relation with the great generalities of the normal. As late as 1862, Dr. Hack Tuke, justifying the importance of "demoniacal possession" in its bearing on insanity, found it possible to write : "Either those supposed to be possessed by devils were labouring under simple madness, the result of natural causes ; or they were madmen the exciting cause of whose malady was the Evil One. In either case the symptoms were those of madness." Laymen—less probably after reading the book prepared for them by Mr. Mercier—may still find an intellectual satisfaction in assigning insanity to other than "natural causes" ; but theoretically at least and for the professional mind "possession," though it has left a trail, has finally fallen from the rank of permissible hypotheses. Twenty years of brain-research have made the correlation of the mental and the physical more definite and less halting ; the hierarchy of nerve-centres has displaced the hierarchy of demons. In these two books the positive results of the best research, mental and physical, are applied with steady vision to elucidate the problems of insanity. The details of either book it is not possible to discuss here ; what concerns MIND is the contribution to method—to the logic, the psychology and, if it be not an abuse of names, to the metaphysic of insanity.

The title of Mr. Mercier's book—*Sanity and Insanity*—gives a hint of his method, which readers of the *Nervous System and the Mind* will find familiar ; the method of the one book is the method of the other. He expounds first the nervous system, next the mind, both in their most general aspects ; then, having set forth with clean-cut emphasis the absolute qualitative disparity of the two inseparables, mind and body, he finds himself with data to ask "what insanity is". A chapter of acute distinctions results in this :—

"Insanity, we find, is a disorder of the adjustment of self to surroundings. . . . In every case of insanity there are present all the three factors—disorder of the highest nerve-arrangements, disorder of conduct and disorder of consciousness; and in every case the disorder of consciousness includes disorder of thought and of feeling, of self-consciousness and of consciousness of the relation of self to surroundings. In no two cases, however, are these various factors combined in quite the same way and thus no two cases precisely resemble one another. On the way in which they are combined depends the form which the insanity assumes."

"Self-consciousness" is the correlate of "the visceral circulation of nerve-energy"; "consciousness of the relation of self to surroundings" is the correlate of the "major or sense-muscle circulation of nerve-energy". This convenient formula—a major and minor nervous circulation—expresses, for Mr. Lewis as well as for Mr. Mercier, a distinction of profound importance in insanity. Then come the "causes" of insanity in six chapters. "Insanity is, in mathematical terms, a function of two variables. That is to say there are two factors, and only two, in its causation; and these factors are complementary. . . . These two factors are, in brief, heredity and stress." The laws of heredity and the forms of stress are discussed with some detail and then under the "forms" of insanity Mr. Mercier applies his formerly established generalisations, first, to displace the hordes of unscientific classifications, and, next, to correlate with the normal and exhibit in their genesis the main groups of insanity. And so he has laid down, as it were, the institutes of insanity.

Mr. Bevan Lewis's book, written for other ends, is altogether on a larger scale. It falls into three sections. In the first—the *Physiological*—section, Mr. Lewis, writing as a first-hand investigator and digesting the researches of many years, gives an account of the nervous system. The features he emphasises are the varieties and distribution of the nerve-cell, the lamination of the cortex and the lymph-connective system of the cerebrum. His superb reproductions of microscopic structure, the product of the latest histological developments, are in a fair way to become classical. In the second—the *Clinical*—section, Mr. Lewis, not regarding the refinements of a strictly logical classification, but following largely the common order, describes with great detail the main clinical divisions of insanity. The features of his exposition I shall notice later. In the third—the *Pathological*—section, there is a vigorous and persistent endeavour, better directed than any yet made in English text-books, to find the nervous pathology of mental aberrations in general and the particular lesions in well-defined types, as epilepsy, alcoholism, general paralysis. The pathology becomes a verified physiology—the shattered nerve-mechanism after the nerve-storm.

So far in general. Next let us see how Mr. Lewis and Mr. Mercier meet the special problems of insanity—logical, psychological and metaphysical. This will bring out the characters of

their books compared with each other and of both compared with other works.

1. *Logical.* The logical difficulties of scientific insanity are enormous; for insanity combines the subtleties of psychology with the obscurities of nervous disease. First there is the Definition, which alienists as a rule give up in despair or elaborate into a hopeless muddle. The *débris* of an effete terminology, the remnants of the "possession"-psychology, the continual mixing of standpoints, practical and theoretical,—these, driven by the necessity of organising instruction and treatment, have made the definition of insanity a "function of many variables". Mr. Mercier, whose book is a distinct contribution to the logic of insanity, has at least found a starting-point—the normal; he has marked off a distinct province for scientific analysis—a special form of departure from the normal, and he has shown how a commanding generalisation may be made to correlate normal with abnormal. In this, the *prolegomena* to insanity, he is complementary to Mr. Lewis, who takes for granted much that Mr. Mercier is at great pains to develop. One cannot say that Mr. Lewis's book suffers much in consequence; for he is careful to define each group of phenomena at the beginning of his exposition. But one need not accept every detail of Mr. Mercier's argument to recognise that his definition and his way of finding it, are a very decided gain to clearness.

Next there is Classification. The data of insanity are such that the classes are many, but the classifications few. The hope of logical classification is not great when books attempt to satisfy three or four *principia divisionis* at one and the same time. Thus Melancholia is marked off by its chief mental symptom; General Paralysis and Epilepsy by their chief physical symptoms; and the insanities of early, middle and advanced life, by the accidents of development. Delirium of fevers, again, and the insanities of injury or intoxication, where the symptoms are melancholic or maniacal or paralytic, are thrown into classes by themselves. States of mental depression, to include the melancholias; mental exaltation, to include the manias; and mental enfeeblement, to include the dementias,—are a certain improvement. But even in so simple a matter cross-division dogs the alienist. For "depression," meaning the presence of intense emotions of depression, is not the mere negative of "exaltation," which applies more to the increased rate of mental processes generally; and to emphasise the confusion, "enfeeblement" is a common sequel of melancholia and mania, and, indeed, on any fair consideration of "mental," does not exclude these states at all (Lewis, p. 163). Epilepsy, again, once the name of a disease, has, since Dr. Hughlings-Jackson taught us how to study it, become the symptom of many diseases; but it has still to find its relationships. These Mr. Lewis does indicate in

associating the epileptic insanities with the "fulminating psychoses," and he gives the material for complete scientific co-ordination; but there still needs some re-setting of the facts. Now for clinical convenience these cross-divisions are of little consequence; for one person always excludes another and the practical alienist deals with persons. But even the best clinical classifications are little better than artificial diagnostic tables for beginners. For the ends of science they are, as a rule, mere confusion. And the confusion arises largely from two causes: first, the practical necessity for separating the insanities from related diseases; second, the failure to apply, rigorously and in detail, the thorough-going concomitance of mind and body. The first has kept in obscurity the qualitative identity of the insanities with other diseases, an identity that Mr. Mercier and Mr. Lewis in their analyses of intoxication, senile dementia and coma, have done much to elucidate. The second, preserving a vague tradition of the "possession"-psychology, has retarded the application of strict analysis to the seeming lawless fantasies of the insane, and the insanities, consequently, have been classified less by their essence than by their accidents.

Lastly there is Method. Insanity has still many ill-understood facts; but it is the business of the scientific alienist to push the insanities towards the deductive stage, and this Mr. Mercier does: assuming the correlation of mind and body, proving inductively heredity and stress, he exhibits the insanities as the result of heredity and stress on the highest nervous mechanism. For the practical alienist the physical will assume the most importance; for the psychologist there is only one method. Nothing comes under insanity that is not in some relation mental, and nothing that is mental is unaccompanied by nervous process. The true method, therefore, is to analyse the mental, to analyse the physical, and then to correlate the two analyses. The two are everywhere co-ordinate. This method, explicitly or implicitly, is the method of Mr. Mercier and Mr. Lewis.

2. *Psychological.* In the minor forms of mental disorder, Dr. Maudsley, Mr. Sully, Prof. Ribot, and the hypnotists of every school, have indicated how much there is for psychology to overtake; how much the morbid illumines and verifies the healthy, and what wealth yet lies unworked in the great wilderness of the insanities. It is, indeed, a marvel that alienists, having to hand so vast a supply of material, have yet, on the whole, so little subjected the subtleties of the insane to direct analysis. In this regard the two books before us are a contrast to the general. Subjective study, it is true, is not easy in the abnormal mind; and yet asylum-records give copious material for it. Objective study, therefore—that is, critical inference of mental states from objective processes—is essential; and for this the material is unlimited. Any ordinary text-book gives clinical cases by the score—states of depression, of exaltation, of every variety and

grade of decaying faculty ; but, unfortunately, there is more of diagnosis, of the object-matter of delusions, of indications for treatment, than of critical co-ordination or systematic generalising of mental phenomena. The requirements of a psychological record of the insane are obvious : a pathology of nervous processes, which Mr. Lewis goes far to supply and define ; a history of sense-disturbances ; a history of delusions in every variety ;—and all ‘done into science’ by the detailed application of a systematic psychology. Towards this, the two books—Mr. Lewis’s in particular—are a material help. The detailed analyses of delusional states, the records of reaction times, the minute study of *auræ*, and the like, are just such as the psychologist wants. Studied thus—that is, scientifically—insanity becomes fruitful in two ways : as a field rich in new material, and as a method of analysis. To exhibit this, I select one or two examples.

Mr. Lewis has many examples of detailed analysis ; but perhaps the most impressive is his analysis of the mental state in Melancholia. In every state of depression there is a failure in object-consciousness (negative affection), accompanied by a rise in subject-consciousness (positive affection). The decline of object-consciousness shows itself in enfeebled representativeness, lessened seriality of thought (defective attention), diminution or failure of the muscular element of thought. With failure in the muscularity of thought goes failure to master the environment in relation, with the consequent feeling of increased effort, of restricted volition, of persistent environmental encroachment. “We fail to *grasp* the environment : we do not *know* it, in the sense of measuring our strength against it ; *and hence we fear it*” (p. 124). How from this the melancholic passes into a “truly self-analytic state” ; how personal identity fails and a double personality may arise ; how the emotional life prevails and the sense-records are falsified, and the “attempts at explanation” end in establishing a new environment, and the melancholic, now a monomaniac, passes into his newly-acquired freedom ; and how, at last, the new personality is set on a stable foundation, and the life of relation develops again on the reduced level (re-integration),—this and the following physiological analysis require more detail than a summary can give.

Here three things are noteworthy : first, the amount of fresh mental situations that occur even in an ordinary case of insanity ; second, the nervous hypotheses implied in the terms—reduced level, reductions, denudations, lowered planes and so forth ; third, how insanity, in its infinite varieties, is really an irregular analysis of the mental syntheses of life and education ; as in the decay of memory the last-acquired goes first and successive denudations end in exposing the very fundamentals of the personal life. Not less instructive is the analysis of mania, the contrasting state.

“All maniacal conditions are pre-eminently distinguished by a failure of attention, or the capacity for serial thought, and a rise of the purely

sensuous in place of the intellectual operations—in fact, the latter are enfeebled, and the emotional elements are aroused; and, as before indicated in states of *depression*, the intellectual sphere presents the negative, and the sensuous the positive results of the reduction. Since seriality of thought requires high nervous pressure—a high tide of the nervous wave to force the ultimate ramifications of the cerebral cortex—so here in mania we must recognise an ebb of this cerebral tide, corresponding to the lowered plane of psychical activity; for the activity which we recognise in the excitement of lower levels is one of disorderly un-governed license, indicative of the removal of the influence of higher controlling planes. . . . It is the more abstract representative processes of association by similarity which are first involved in maniacal reductions—the less abstract presentative-representative processes not being so far involved. This fact explains much of what we observe in the maniac's conduct: his perceptions are crude and his notion of the essential utility of objects around him is frequently at fault—the result is often comical, but at other times it is disastrous to himself and to others. Thus we may see such a subject trying to put his coat on by thrusting his legs into the sleeves, mistaking the garb for a pair of trousers; here we observe that the association by similarity suggests to his mind only imperfectly the utility of the garment." Other results due to the same cause are often put down to "sheer wilful mischief".

A comparison of this with normal states is interesting. The failure of attention means the failure of discrimination, failure to detect differences; in the rush of contiguities, therefore, fleeting, superficial similarities are abundant. In fatigue, it is often noted, as in drowsiness, in reverie and generally where attention is feeble, the mind is most open to superficial similarities, which a moment of direct attention is enough to dispel. Thus with many minds slight fatigue leads to a low order of puns—the differences are too lightly perceived to mask a similarity that is too little for an active consciousness to note. This is utterly different from the alertness of wit, where the flavour of the pun is due to the keen perception of differences. Feeble punning is really a want of wit and the attempt of the maniac to don a coat for trousers is only a feeble *motor* pun. (v. Sully: *Illusions*, p. 157.) But in the failure of attention, as in the rise of the sensuous, the fleeting delusions, the over-action on lower planes, the sense of freedom, the rapid flooding of the mental field so that the judgment fails, the unpredictable conduct (reminding one of Richter on the unpredictable variations of the feminine mind)—the "raving maniac" is a splendid model for psychological observation. As for ethics the saint is less illustrative than the sinner, so for psychology the sane is less illustrative than the insane.

Next what contributions does insanity, as here studied, make to the special problems of psychology? I take three instances—(a) the concomitance of mind and body, (b) the gradation of nerve-centres with the corresponding mental gradations, and (c) the place of the organic sensations.

(a) General considerations are enough to establish the concomitance of mind and body; but every advance in analysis,

physical and mental, is a gain to definiteness. The account of the "motor unit" (Lewis, p. 67), the refinements of distinction among cells and convolutions, the local variations of size of cell, of appearance, of connexions, of "representative" importance, this kind to minute muscles, that to the more massive, one indubitably motor, the other indubitably sensory, this group marking the greater motor areas, that the lesser—these and the exact rendering Mr. Lewis is able to offer, give some imaginable concrete basis for the enormous wealth of mental activities. And were it only for this better defining of the physical basis, Mr. Lewis's book is important; for the hypotheses of nervous changes, compounding and decompounding of molecules, variations of nervous tension, inhibitory cell-action and the like, though they are well and in their place when the mental facts require them, will gain, nevertheless, in definiteness and cogency from the better definition of the actual mechanisms involved. The assigning of functions to definite varieties of cell and fibre is not less important than the localising of the motor areas or the determination of the hierarchy of centres. And to this assigning of function and the consequent elucidation of morbid phenomena, as of impulsive insanity (p. 176), epilepsy (p. 477), senile decay (p. 487) and alcoholic insanity (p. 535-9), Mr. Lewis's researches are a great contribution. Mr. Stout has argued that nervous physiology will be of little use to psychology till our notions of nerve-energy are as definite as the atomic theory in physics, till a given state of the physical enables us to predict a given state of the mental. This ideal is yet far off; but work like Mr. Lewis's is bringing it within view. One matter, of great interest psychologically, Mr. Lewis gives more consideration to than most neurologists—*viz.*, the provision for new nervous growths (p. 108).

(b) Of the nervous hypotheses used in these two books, the gradation of centres is by far the most serviceable. This hypothesis, long familiar in its general form to the evolution-psychology, has been made more definite on the practical side by the "three-levels" of Dr. Hughlings-Jackson, who has from time to time re-stated his argument with new facts and new ingenuities of interpretation. From the study of convulsions, the hypothesis has been pushed into every field of insanity; it is Mr. Mercier's "master-key" and the denudations (understood of the cortical laminations), reductions, and lower planes, of Mr. Lewis are all parts of the same fruitful suggestion. Some such far-reaching hypothesis is essential to the continuous exposition of insanity; for, though analysis is always possible from the mental side alone, the grading of mental states is aided most materially by statement from the physical side. It is not always easy to place one set of intellectual operations on a "higher level" than another; it is much easier to assume that the physical and mental are correlated on the various levels of each and then to

state the analysis in terms of the physical. The correlation, however, has to be proved by itself ; and the work of localisation will be to find in what convolutions and what laminæ of the cortex the various grades of the higher levels are placed. It is here that the pathology of the insanities will avail most.

(c) Since Professor Bain first exhibited the profound importance of the Organic Sensations, probably no department of psychology has risen more in value. What is the physical basis of the feelings of well-being or ill-being ? That was one of the first questions that the exposition of the organic feelings had to answer. And the answer has been so difficult because the organic sensations are so vague, so little localised, so difficult to formulate in words. The positive description of them is so difficult, because their contrapositive is so various ; disorder of the viscera is, as a rule, local enough, but this very individualism of disorder, which in differentiated senses is a help to analysis, masks the generality of the system disordered. From the minute study of the nervous system, however, the necessity for representation of all bodily departments in the general parliament of the nerve-centres, the urgency of finding for every mental a physical, and for every physical a mental counterpart, and lastly, the rational study of nutritional disorders in the insane, as by Mr. Mercier and Mr. Lewis, the organic feelings are beginning to out-top in importance the master-senses of touch, hearing and vision. "Elles sont les agents principaux de ce travail cérébral sourd, mystérieux, inconscient, qu'on néglige en général pour ne voir que le travail plus brillant des sens spéciaux, mais qui n'a pas moins d'importance que ce dernier au point de vue purement intellectuel et qui en a beaucoup plus au point de vue émotionnel." (H. Beaunis : *Les Sensations Internes*, p. 252.) And there is no part of psychology that the study of the insane is more likely to elucidate ; for the feelings of well-being, self-identity, personality (to use these terms in a well-understood sense) have their physical counterpart in the health and integrity of organismal processes—in the *cœnæsthesis*,—and it is precisely those subtle and pervasive feelings of well-being and the like that in insanity are always disordered. Consequently, every marked case of insanity is, as it were, an experiment on the *cœnæsthesis*. Our authors are both fully awake to this important fact. Mr. Mercier's division of nerve-circulation into major and minor is designed to show the importance of the organic feelings. "In every case of insanity the nutrition of the whole body is disordered" (p. 134). The "wretchedness" of nocturnal vigil (p. 303), the assimilation of sleep to melancholia (p. 345), the analysis of delusions of self (p. 367) are further instances to the same purpose. With Mr. Lewis, too, the organic feelings have a place of equal honour ; the references are too numerous to quote. To the methods of analysis thus indicated it is necessary to add Hypnotism. If Prof. Delbœuf's theory of the re-establishment of direct control over the nutritional

processes be accepted, and if the remarkable increase of subjective discrimination indicated by M. Beaunis (*Op. cit.*, p. 156) can be established, the organic feelings will soon be as well understood as the more isolable sensations of the five senses.

3. *Metaphysical.* A desire for superficial and seeming completeness often leads the alienist to give 'some account' of mind; which commonly means an unstrained series of opinions on spiritualism, materialism, the relations of mind and matter and the like. From this our authors are both free. Positive insanity, like positive psychology, requires certain assumptions. These, which it is not the part of insanity as such to justify, are made and the exposition proceeds. One cannot help feeling the inadequacy of Mr. Mercier's "substance-and-shadow" metaphor for mind and body; it expresses the concomitance, but scarcely the disparity. Yet who has suggested a term that does express all the peculiarities of that unique relationship? The important thing is that the substance of the exposition do nowhere contradict the primary assumption, however expressed; and with both our authors the exposition nowhere does, unless casually in a verbal way. It is probably only an apparent lapse when Mr. Lewis, classifying the conditions of "revivability of impressions," puts down "vigour of the faculty of attention" (mental) as co-ordinate with "vigour of circulation and nervous energy" (physical). Is not attention the mental side of a *local* increase of "circulation" and "nervous-energy"? But if the greater things of the thought are sound, the lesser things of expression need not affect our appreciation.

W. LESLIE MACKENZIE.

Elements of Logic as a Science of Propositions. By E. E. CONSTANCE JONES. Edinburgh: T. & T. Clark. 1890. Pp. xv., 208.

This book is really a series of discussions on several logical topics, and its contents would have been much better described by the title "Notes," which Miss Jones first proposed to give it, than by *Elements of Logic*. The latter title is not justified on the ground that the volume "presents what is necessary for indicating the outlines of the science of Logic;" for to give thirty-six pages to the discussion of Existence and a Limited Universe and only four to the whole subject of Induction is not to give a fair idea of an outline of Logic—it is rather to give a sketch in which some large regions are very slightly filled in and some small ones are very minutely shaded.

As a series of notes, the volume has a character of its own. The discussion is painstaking to the last degree, and classification—of terms, of propositions, and of arguments—is carried to the farthest verge of which classification is susceptible. We

cannot help thinking that the classification is overdone (the bare Tables exhibiting the kinds of categorical propositions occupy fourteen pages) : none of it is incapable of justification, but much of it seems to us of very slight logical interest. For instance, the final division of everything is into absolute and relative (or what Miss Jones calls independent and dependent)—a division which is entirely irrelevant to common Logic. If one is going into the Logic of Relatives—if one is going on to discuss the logical equivalence of two such sentences as these, ‘All patriots are lovers of all but enemies of some countries’ and ‘Some countries are subjects of enmity to all who are unloved by any patriot’—then it is necessary to distinguish relative from non-relative terms, and to set forth clearly all the relations that hold between the eight distinct kinds of relative term. But any combination of words *which is not to be broken up in the course of a given argument* is, for logical purposes, exactly the same thing as a simple term, whether it is expressed in one word or more than one. The suppression of this division, together with the equally irrelevant one into vernacular and specific, would alone do much to shorten Miss Jones's Tables, and hence to rob them of what must seem, to most feeble human minds, a very considerable degree of formidableness.

It is of more importance than it would seem, at first sight, to take a right view of what Logic is. Miss Jones defines it to be the Science of Propositions, or of the Import and Relations of Propositions. This is not erroneous, if one lays strong emphasis upon the word *relations*, but it is infelicitous. In defining a science, the subject-matter of which is already pretty well marked out, the thing to do is to find out what is the inmost secret of our interest in the subject-matter, and to make the definition hang upon that. In the case of Logic, the striking feature about the thing is that, as a praxis, it enables us to sit down at our study-table, to take a lot of propositions brought in to us, it may be, from very different regions of knowledge, and, by piecing them together, to produce new propositions without fresh reference to the outside world ; and that, as a theory, it enables us to study the nature of this piecing together, and to lay down its proper safe-guards. For instance, take a syllogism which, in my own experience, there has been constant occasion to lean upon. It is easy to remember that the German words *Zapfen* and *Stäbchen* mean together the rods and cones of the retina, but when it becomes necessary to know which is which, that is not so easy. I have found myself obliged, again and again, to go through with this syllogism :

From my knowledge of Grimm's	From my memory of youthful games
law, I know that <i>Zapf</i> is <i>top</i> .	I know that <i>top</i> is <i>cone</i> .

By putting this and that together, I know that *Zapfen* is *cones*.

Now the essential feature of what has taken place is the *fusing*

together of two propositions, and the *emergence* of a third. It is true that this could not have taken place if the two propositions had not stood in some relation to each other, but it is not the standing in the relation which is the critical point of the mental event. In other words, Logic is properly defined as the Science of Reasoning, and not as the Science of Propositions. We do not define Architecture as the science of bricks and mortar, nor Biology as the science of the cell, though these would not be impossible definitions. The value of this observation lies in its application. Every thing that has not some bearing, more or less direct, upon the theory or the art of drawing conclusions, ought to be excluded from Logic, or at least to be treated in very fine print. Many distinctions which would be of interest in a higher kind of grammar—a psychological grammar—are not of interest in Logic. If Miss Jones's classifications could have been sifted with this principle in view, they would have stood a better chance of being accepted by logicians.

The subjects discussed at the greatest length by Miss Jones are the Import of Propositions and the Existence of Terms. The reason that so many different views are possible in regard to the Import of Propositions is a very simple one. Every term is a double-edged machine—it effects the separating out of a certain group of objects and it epitomises a certain complex of marks. From this double nature of the term, it follows with mathematical rigour that a proposition, which contains two terms must have a four-fold implication (though one of the four senses may be at any time uppermost in the mind). Whoever says, for instance, that 'All politicians are statesmen' must be prepared to maintain that the objects, politicians, are the same as some of the objects, statesmen, and are in possession of all of the qualities of statesmen; and also that the quality-complex, politician, entails the quality-complex, statesman, and is indicative of the presence of some of the objects statesmen. (In any given case, the term may be applicable to only a single object, or indicative of only a single indivisible quality, as *sun*, *blue*.) In other words, to say that *a* is *b* is to affirm that both from the objects *a* and from the qualities *a* are inferrible both objects *b* and qualities *b*. Now it is open to the logician to say that any one of these four implications is the most important or the most prominent implication of the proposition, but it is not open to him to say that less than all four of them is the complete implication. Any one of the four is a sufficient ground-work on which to work out the entire system of reasoning, and when that system has once been built up, it can be translated into any one of the others by a purely mechanical change of the words in which it has been expressed. The proposition '*ab* is non-existent' does not state that the classes *a* and *b* have nothing in common, any *more* than it states that the qualities *a* and *b* are never found in conjunction. Mill's view of the import of the proposition is the third of

these—that wherever we find certain attributes, there will be found certain other attributes, that the latter set of attributes constantly accompany the former set (*Logic*, pp. 77, 80). The common class-view is the first of these. The view that the extent of the subject and the intent of the predicate are most frequently uppermost in the mind is the view that will probably commend itself to the careful psychologist.

Miss Jones's view is that the categorical proposition affirms Identity of Denomination in Diversity of Determination, or Quantitative Identity in Qualitative Diversity. (In order to say *identity* of denomination, the predicate *b* must, of course, be first changed into 'some *b*'.) This has the merit of having reference to two of the four affirmations of a proposition, but it has the demerit that the second clause of it is not an adequate description of the qualitative relation that holds between the subject and the predicate—it is merely the condition of the proposition being significant. When we say 'All men are mortal,' the statement, in terms of quality, is not 'Being a man is-a different-thing-from being mortal'; but it is 'Being a man is-indicative of being mortal' or 'The quality man-ness is-always-attended-with the quality mortal-ness'. That this is so needs no arguing, and, in fact, Miss Jones herself sets it forth distinctly in another place. She says (p. 61)—"From every *X* being *Y* there may be inferred a connexion between *Xness* and *Yness*"; and it is plain that the connexion here referred to is not the connexion of diversity. But if it be said that the reference to quality is merely added to secure the proposition's being significant, then what remains is simply the common class-view of the import of the proposition—a view which Miss Jones apparently considers very objectionable. But she can hardly seriously maintain that the difference between the two statements

'The objects *a* are-included-among the objects *b*'

and

'The objects *a* are-identical-with-some-of the objects *b*

is anything more than a purely verbal difference. If some higher court has handed down the decree that the predicate in 'All *a* is *b*' must be a name not for *b* but for 'some *b*,' then it is true that 'are-identical-with' is a better form of expression for what is left of the copula; but even the assertion 'The *a*'s are identical with the *b*'s,' is not *incompatible* with 'The *a*'s are included among the *b*'s,' as Miss Jones affirms it to be (p. 53). If a lot of objects are contained in a given circle, do they cease to be contained in it when they become so numerous as to fill it completely up?

On the allied questions of Existence and a Limited Universe, Miss Jones shows a good deal of misapprehension of the position of her opponents; the force of her argument carries her so far, in fact, that she ends by accusing them of denying the Law of Contradiction, and she utters a warm defence of that law, which, she says, is a pillar of Logic, and to question which is to question the

very possibility of truth. If there are any individuals who question the Law of Contradiction, they would certainly be very interesting specimens for preservation in a psychological cabinet of curiosities.

Miss Jones, indeed, gives up the whole case, as far as the non-implication of existence in *universal* propositions is concerned, in spite of her very long argument against it, when she says plainly on p. 95 that universal propositions ought not to be taken as making any implication whatever in regard to the actual existence of their terms. This is the very thing that her opponents are intending for; it is very illogical (and it is doing great injustice to their sanity) to suppose (p. 93) that it follows from this that they force themselves to doubt the existence of every thing that they ever talk about in general terms. They simply say that it is (for certain reasons which we cannot set forth here) a *useful convention* to take 'All the *a*'s are *b*'s' as meaning, 'All the *a*'s that there are are *b*'s'; and, if it is also known that there are *a*'s, to state that as a separate proposition, 'There are *a*'s'. In regard to particular propositions, their attitude is this: it is hard to see any logical distinction between 'Some *a*'s are *b*'s' and 'There are some *a*'s that are *b*'s'; the latter plainly affirms the existence of *a*'s that are *b*'s, hence it is better to take the former also as affirming the existence of *a*'s that are *b*'s. The kind of existence that is not asserted in the one case is, in any one discussion, exactly the same kind, whatever that may be, that is asserted in the other. Or, their attitude may be expressed in this way: they humbly beg that such an argument as this—'All salamanders breathe fire; there are such things as salamanders; therefore there are things which breathe fire'—shall not be taken as an argument having no content.

Miss Jones's chief objection to De Morgan's useful idea of a limited universe is also based upon a misconception. The objection is that the universe is no sooner named than it is transcended; but the very meaning of universe is the understood container of all our terms (including their negatives), and if any thing is named it is a term and not the universe of the given discussion.

Much of Miss Jones's new nomenclature is well-chosen and worthy of adoption—notably the name *alternative proposition* for 'Either *a* is *b* or *c* is *d*,' instead of disjunctive proposition.

CHRISTINE LADD FRANKLIN.

The Gain of Life, and other Essays. By WILLIAM CHATTERTON COUPLAND, D.Sc., M.A. London: T. Fisher Unwin, 1890. Pp. xii., 285.

Of the essays which compose this volume two have a philosophical interest; but we propose to confine ourselves to the

essay which gives the volume its name and more than half its bulk. It is a discussion of the question between optimism and pessimism, not in its historical aspect, but on its own merits. Dr. Coupland certainly succeeds in treating the subject in a way which will be popularly intelligible. The ordinary reader may however be puzzled by the author's metaphysics, presented as they are with incomplete evidence; and perhaps his head will turn when Dr. Coupland takes him conscientiously through all the degrees of comparison—bonism, meliorism and optimism, with their antithetic malism, pejorism and pessimism. Dr. Coupland, the translator of Von Hartmann, has the merit of being a sympathetic critic of pessimism; but his sympathy is so largely mingled with strong good sense that pessimism comes off but poorly in the end. The upshot is that neither has life a positive value, nor on the other hand is pain proved to be in excess (a view which is called Indifferentism); but that in seeking to live we obey an instinct or impulse to progress "which we trust is rational, though we cannot prove it to be so," and which is "the stirring within us of the moving spring of the Universe". Many persons turn with distaste and impatience from the subject of pessimism, but a question which interests so many people's minds cannot be disregarded, and though it is incomplete the present essay must be welcomed as an impartial and straightforward discussion.

With great dexterity Dr. Coupland begins by appealing for a hearing to the authority of Mr. Spencer who in a well-known passage of the *Data of Ethics* has said that the issue 'Is life worth living?' must be decided before we can enter on any question of ethics; and not till considerably later does he mention how Mr. Spencer has shown his sense of the value of his own dictum by devoting to the subject just six pages of his book, in which with a happy sagacity he evades the issue. Fortified by this authority and assuming that the value or worth of life must be measured by its producing more pleasure than pain, Dr. Coupland then reviews the evidence, and finds it insufficient for forming a decision. He shows how difficult it is to strike a balance in the animal world. And in human history we find a heavy debt of misery paid to Ignorance and Greed, the two sources of our ills—ignorance to which may be traced all physical or mental disease; greed, which produces war and competition. Yet history tells us only of the salient events and not of the common life, and the record is too uncertain for a conclusion. We are no better off when we turn to the individual experience, because we do not measure our pleasures and pains systematically. Nor does a consideration of the conditions of willing help us: we find that pleasure and pain alike are antecedents of action, and that besides them we act from impulse without regard to pleasure or pain. Progress is then discussed. Dr. Coupland does not expect much from socialism, though he looks forward to a large extension of co-operation. Von Hartmann's belief in a continual increase of misery is subjected to severe criticism.

Progress, the author concludes, brings no gain of proportionate happiness; it only brings a larger life. How then can we defend the continuance of life? We seek to find a value for life here, and so are debarred from a reference to the possibility of a life of our own hereafter. The answer must be transcendental, the motive for living must be cosmic. We must conceive our own life as part of the universal life of the world. Already, in a discussion of the nature of will, Dr. Coupland had stated his belief that behind the phenomenal mind there is a real Ego which is identical with the central principle of the universe. This principle, because it is known to us as power, he calls by the name of Will. In seeking to urge on the progress of the world we are bearing witness to the existence in us of the All-Spirit. This view is sufficient to answer the question which all the *-isms* in their degrees of comparison seek to settle, and to determine us in favour of the *status quo* (or the *motus quo*), filled with faith in the world-will, which we must believe to be rational and orderly on pain of rendering our knowledge unintelligible.

There are several points worth noticing in this commendably short essay, but we can only refer specially to one. While holding himself that life has no positive worth, the author makes it clear that a belief in progress does not need to be justified by showing that pleasure increases in a greater proportion than pain. Both may increase together and their proportion remain unaltered. Each enlargement of happiness, in fact, opens new fountains of tears, while it closes the old. Progress (to adapt a phrase of Mr. W. L. Courtney's) does not necessarily imply amelioration but only advance. This is the truer meliorism, on the assurance of which most sane minds are content to act.

It cannot be pretended that Dr. Coupland's final solution is satisfactory. In seeking a transcendental answer to the original question, he abandons the position from which he starts. Worth was declared to be judged by excess of pleasure over pain; and such worth he fails to discover in life. Either, then, he has given up the dogma that life is justified by its pleasure-value, or he has changed his conception of value. His conclusion is in effect that life is justified by its forming a part of the universal plan or process. The adequacy of pleasure as a criterion of value need not be discussed, but it is plain that only confusion results when a man is told that life is not worth living except it is pleasant, and then learns that he must seek to find a value in it because he trusts it forms part of a reasonable plan.

The confusion is significant, and arises from an essential defect in the theory of pessimism, and in any attempt like Dr. Coupland's to answer its question more or less from its own point of view. The practical good sense of his answer does not conceal the inadequacy of it. Dr. Coupland, like the pessimists themselves, has failed to see the real light which history, as interpreted in the theory of evolution, throws upon the problem. He does, indeed, point out that according to that theory an excess

of pleasure is the condition necessary for life to be maintained. This well-grounded generalisation is difficult to reconcile with the belief that human life has no positive worth or less than positive worth. But the theory teaches another lesson, all the more significant because it brings the authority of science to support the healthy feeling of the ordinary man that the question, 'Is life worth living?' is an idle one and the only real question is, 'What sort of life is worth living?' The fact of natural selection, if it means anything, means this, that the process of evolution itself creates value. A number of forms of life contend for primacy: the success of one means that it has value, and that the beaten forms are without value. In human affairs the life thus declared to have value is the moral life. If, then, the distinction of the valuable from the valueless is itself created by the process, how can we apply to the process a test which is only intelligible within the process? We could only ask whether life is worth living *at all*, if living could be as a fact put into competition with non-existence. But all the facts we know are facts of existence. The question, 'Of what use is life?' is indeed intelligible when it comes from a man oppressed with misery, or incapable of endurance; but with him, too, it is a protest against a particular form of life. Instead, then, of asking, 'Of what use is life?' we have to ask, 'What life is of use?' This question is answered theoretically by the theory of selection in all its departments; it is answered in practice by the effort after amelioration. When the question is thus put, we can still seek a comprehensive formula which shall discover the position of any particular form of valuable existence in the whole economy. This is the question which Dr. Coupland answers in his own way; but it is not the question of pessimism, which, to do it justice, is consistent enough, though it purchases consistency at the price of an extravagant absurdity.

Let us, however, admit that the pessimists sin in excellent company. The agnosticism which bows the head before a mysterious Unknowable, or more consistently declares that it does not know whether there may or may not be some power behind the world, is the victim of an analogous deception. The contrast of what is known and what was once unknown but gradually becomes known, is a contrast within the world of actual existence. By an illegitimate impulse, exactly like that which questions the value of life in general, because some life has no value, the mind inquires whether behind all the world of possible knowledge there is not something else which transcends knowledge. To set up a mysterious possibility may testify to the modesty of the human intellect, or even serve as a convenient substitute for religion. But the difficulty is the wilful creation of the mind itself. In the facts and not beyond them must be sought the answer alike to the question what function the human life performs, and to the question what is the moving principle of existence.

S. ALEXANDER.

VIII.—NEW BOOKS.

[*These Notes (by various hands) do not exclude Critical Notices later on.*]

The Golden Bough: A Study in Comparative Religion. By J. G. FRAZER, M.A., Fellow of Trinity College, Cambridge. 2 vols. London: Macmillan & Co., 1890. Pp. xiii., 409; ii., 407.

These remarkable (and very handsome) volumes deal with a special question that has laid hold of the author in the course of an extended general inquiry into primitive superstition and religion. The question is of the rule of priestly succession at the wooded sanctuary of Diana by the Lake of Nemi (Aricia), on the Alban Hills. A runaway slave, the priest gained his post only by slaying his predecessor, after first plucking a bough, called golden, from the sacred tree of the grove. Without parallel in the historic times of classical antiquity, the strange usage remained in force down to the days of the empire. Mr. Frazer seeks to shed light upon it from every possible quarter—classical legend, customs of savagery, past and present, or of extinct civilisations, and notably (after the late W. Mannhardt) the still existing superstitions of peasant folk. With reference as well to the killing as to the bough-plucking, he is led into much general consideration of primitive animism; the main outcome of which is to magnify the import of tree- (or plant-) worship for early religion, and, indeed, to make out this to have consisted of nothing, or little, else. That he has sometimes exaggerated, he is himself inclined to suspect; but the forcing of the argument, *e.g.*, in the interpretation of particular myths, classical or other, may still not be without its use in insuring sufficient recognition for this element in the beginnings of religion. In view of all the multitudinous evidence brought to bear, the killing of the successive priests is explained as a survival of the primitive idea that the spirit of vegetation, incarnated for the time in each, could only thus be preserved in full freshness and vigour. The golden bough is identified with the evergreen mistletoe, taken as embodying the life or spirit of the sacred oak more especially during its winter-sleep; and the plucking by the aspirant to the priestly office has thus a significance obviously contributing to that of the decisive killing. Detailed statement of the chains of evidence involved is not here attempted, much less any critical estimate of them; but perusal of the "Study" leaves the impression of its being a model of its kind—and the kind one which has now become eminently suited to advance the objective science of human nature. Its record of human perversities of dawning judgment, so many of them fiercely cruel in their effects, may leave the reader also with curious thoughts of the painful paths along which man has had slowly to stumble upward from his former estate.

An Introduction to the History of the Science of Politics. By SIR FREDERICK POLLOCK, Bart., Corpus Christi Professor of Jurisprudence, University of Oxford, &c. London: Macmillan & Co., 1890. Pp. 128.

An essay, originally delivered as lectures at the Royal Institution in 1882, printed shortly afterwards in the *Fortnightly Review*, and now given in collective form (with some revision); American readers having, in the meantime, entered into possession of the author's instruction, by the appropriative energy of some publisher in that land of the free.

Some exception could be taken to the author's scheme of "Science or Philosophy" on p. 4, even for the limited purpose of the lectures; but, once he is under weigh, the strong human interest of his treatment is well maintained to the close. Four divisions are made—of "The Beginnings of Political Science" (chiefly in Aristotle); "The Middle Ages and the Renaissance" (made to cover Hobbes); "The Eighteenth Century and the Social Contract" (from Locke to the protesting Burke); "Modern Theories of Sovereignty and Legislation" (from Bentham on).

An Introduction to Social Philosophy. By JOHN S. MACKENZIE, M.A., Glas., B.A., Cantab., Scholar of Trinity College, Cambridge, and Assistant Lecturer in Philosophy at the Owen's College, Manchester; formerly examiner in Philosophy in the University of Glasgow. Glasgow: James MacLehose & Sons. Pp. xi. 890.

This volume contains the substance of the Shaw Fellowship Lectures delivered at the University of Edinburgh in January, 1889. It is an attempt to apply philosophical principles to the treatment of social questions, and is divided into seven chapters. Ch. i. on "The Scope of Social Philosophy" contains a discussion of the place of social philosophy among other studies; the relations, in particular, to Ethics, Politics, and Economics are defined. Ch. ii. is on "The Social Problem," and contains a statement of those social questions to which it is at the present time most important that philosophical principles should be applied. Ch. iii. is on "The Social Organism," being a discussion of the sense in which it can be truly maintained that society is an organic whole. In ch. iv., which is on "The Social Aim," various possible views of the ultimate aim of social life are considered, and an attempt is made to define the aim with reference to the organic view of society. Ch. v. is on "The Social Ideal," to which the aim defined in the preceding chapter naturally leads; various one-sided ideals are criticised. In ch. vi., which is on "The Elements of Social Progress," the nature of the ideal is worked out more in detail, with special reference to the problems suggested in ch. ii. Ch. vii. contains a "Summary and Conclusion". The general philosophical point of view is that of the Post-Kantian Idealism.

(1) *General Metaphysics.* By JOHN RICKABY, S.J. (2) *Psychology.* By MICHAEL MAHER, S.J. ("Manuals of Catholic Philosophy.") London: Longmans, Green & Co., 1890. Pp. xi., 898; xvi., 569.

Former Manuals of this Series have been noticed at greater or less length in MIND xiv., 140, 271, 290, and 425. Both of the present volumes are specially marked by the effort to bring the Scholastic tradition into relation with modern thought and research. As to the upholding of the tradition there is of course no mistake; modern thought being viewed in a general way as "the adversary" or "the enemy". This view finds expression, with definite special application, at the opening of bk. ii. of Father Rickaby's *General Metaphysics*. "The opponents whom we shall seek to encounter will be mainly our English Empiricists, because they represent the most natural aberrations of British intellect; whereas other aberrations are of an imported character, being borrowed especially from Hegel". At the same time the disposition to make every concession that can be made without damage to the Scholastic structure is equally evident. "To represent the Scholastics of the present time as men all ignorant of experimental science would be as inaccurate as to represent them as all clinging, without abatement, to the old multiplicity of essential forms in all their

abundance. One point on which they are unanimous is, that the soul is not indeed the body, but the essential form of the human body; few would deny a similar office to a vital principle in the mere animals: very many affirm the like for vegetable life: and below this point the dissidents begin to multiply." Again, it is frequently and emphatically pointed out that by the Aristotelian Scholastics at least "essences are not supposed to be known *a priori* and to lead deductively to physical science, but they are inferred *a posteriori*". On the other hand, science will never be able to dispense with the term "essence". "No Physics without Metaphysics." The method of "General Metaphysics" as here set forth is to proceed downwards from Being as quite undetermined or "transcendental" to Being as determined by highly general characters. Being (*Ens Essentiae*) is defined as an *existibile*, or "that which does or may exist, whether it exist or not"; existence being "the actuality of an essence". After Essence and Existence have been defined, the three Attributes of Being, namely, Unity, Truth and Goodness, have to be demonstrated. Next, Being is considered in its determinations as actual and possible, necessary and contingent, infinite and finite. This concludes bk. i. (pp. 1-220). Bk. ii. (pp. 221-385) deals with determinations of Being borrowed from the Aristotelian categories, considering it as substantial and accidental, as active in opposition to passive, as relative in opposition to absolute, as spatial and temporal. Substance and Causality are dealt with in an interesting way; an attempt being made to show that the conception of substance as *substratum* is not necessary to scholasticism; that it is sufficient for the Scholastic to be allowed to define it as "a Being existing *per se*". Thus defined, even Hume—whose "vagaries on the question of substance" have to be disposed of—is found to allow it occasionally, as for example when he says in express terms that he believes in the existence of substance as that which exists by itself, though he does go on to apply this to "perceptions".

The influence of modern work on the Neo-Scholastic Psychology, as might be expected, goes deeper than its influence on the Metaphysics; though the structure is in appearance maintained intact in both volumes. Father Maher's joining of old with new in his *Psychology* is very skilful; and sometimes the highly systematised character of the Scholastic doctrine gives him a certain advantage in face of modern psychological classifications with their more tentative character. The author is often able to go to a considerable length in the assimilation of modern ideas. "As all mental processes," he says at p. 15, "even the most purely spiritual acts of intellect and volition, are probably accompanied or conditioned by cerebral changes, too much labour cannot be devoted to the study of the constitution, structure and working of the organism." This, however, is somewhat qualified, if it is not quite contradicted, in another passage. "By describing the activity of intellect as spiritual or inorganic, the Scholastics implied that it is a function of the mind alone; that unlike sentiency it is not exerted by means of any organ. It seems to us incontestable that when properly understood this is the true doctrine" (p. 245). Perhaps formal contradiction is escaped when it is said that the intellectual activity of the "supra-organic or spiritual faculty" "depends *extrinsically* or *per accidens* on the organic faculties"; that "intellectual cognition always involves *self-action* on the part of the mind, but the conditions of such self-action are posited by impressions in the inferior recipient faculties" (pp. 247, 248). The Faculty-doctrine is, of course, maintained without wavering; the scheme adopted by the author being the "double division of faculties, on the one hand, into

sensuous and rational, and on the other into cognitive and appetitive". The phenomena of feeling (pleasure and pain) are not to be assigned to a special faculty, but are "reducible either to aspects of cognitive energies or modes of appetency". Rejection of the modern tripartite division of mind is a note of Scholasticism. "Natural Dualism" is of course upheld; but the author seems disposed to adopt rather the form of it that makes perception of the body come first, and then perception of the external world; this last arising only in consequence of associations and mediate inferences. The divisions of the work are:—"Introduction" (pp. 1-40): Book i. "Empirical or Phenomenal Psychology" (pp. 41-487); Book ii. "Rational Psychology" (pp. 489-545), to which is appended a Supplementary Chapter on "Animal Psychology" (pp. 546-558). Under "Empirical Psychology," first "Sensuous Life" is dealt with (pt. i., pp. 41-280), and then "Rational Life" (pt. ii., pp. 281-487). Association, of which a pretty full account is given in connexion with Memory, comes wholly within the first part (c. x., pp. 181-215). The faculties from which the two kinds of life—the sensual and the rational—proceed, are "two classes of faculties of essentially distinct grades". Sense apprehends the "suchness," the phenomenal qualities, but not the *being*, the "isness" of things. To cognise Being the intellectual faculty, the Rational or Spiritual activity of the mind, is required. Empirical Psychology is incomplete without Rational Psychology, which is strictly a philosophical science; its aim being to demonstrate the simplicity, spirituality, &c., of the soul. In bk. ii., accordingly, recent theories concerning the soul, especially the "double-aspect" theory with its opposition to the Scholastic dualism, are dealt with. There is a slip when it is said that the school which, in one form or another, defends this theory, "is at least unanimous—however illogical—in teaching that bodily states, at all events, determine changes in our mental states" (p. 471); but this is exceptional. The historical and controversial parts all through the volume are in general very careful and well managed. In the "Rational Psychology" the old garment becomes more conspicuous than in the other division, and the new cloth correspondingly less so; but even here there is an effort to assimilate as well as to controvert modern ideas. A serious attempt is made, for example, to show how the doctrine of an evolution of man's physical organism from that of a mere animal may be held consistently with the Catholic doctrine of the soul. In a chapter on Cerebral Localisation (which comes within Book ii.) and in the supplement on Animal Psychology, there is some incisive criticism on the want of conclusiveness in many of the results of modern research.

Induction and Deduction: A Historical and Critical Sketch of successive philosophical conceptions respecting the relations between Inductive and Deductive Thought. And other Essays. By CONSTANCE C. W. NADEN. Edited by R. LEWINS, M.D. London: Bickers and Son, 1890. Pp. xxv., 202.

The author of these essays died in 1888, aged 80, at the beginning of what promised to be a career of much eager activity, practical as well as intellectual. She had a poetic gift which has not failed of recognition, and, having had her mind turned also to philosophy while she was yet a girl, engaged afterwards in various studies, scientific and other. Her chief essay (pp. 1-100), giving name to this volume, was written (at the age of 29) for a college-prize at Birmingham. It displays, with superior powers of expression, a good understanding of the essential implication of Induction and Deduction with one another. On the historical side, it

is weak ; with no sufficient continuity in the development, and the information at many points only elementary. The author appears to more advantage in one or two other of the essays, as a sympathetic yet withal independent critic of Mr. Spencer's ethical and sociological views. The chief philosophical stimulus came to her from Dr. R. Lewins, who issues the memorial volume. From him she accepted, under the name of "Hylo-Idealism," a doctrine that seeks to combine a thoroughgoing Protagorean subjectivism, amounting to solipsism, with a dogmatic materialism ; and she was prepared to follow him, at least some way, in the use of a peculiar terminology (with words like "asself," "autosism," &c.) which he appears to find needful. Two of the shorter papers expound something of this Hylo-Idealism, with more warmth than illumination.

Hypnotism. By ALBERT MOLL (of Berlin). ("The Contemporary Science Series.") London : Walter Scott, 1890. Pp. xii., 410.

This is a translation of a second and enlarged edition of a German book which made its first appearance last year. It is very rarely that it does not read as if it had been written in English—a fortunate effect of the unnamed translator's work which is doubtless in no small measure due to a simplicity (in general) of style very refreshing to come across in a German author. In point of matter, there is no less occasion for favourable judgment. The two main chapters, "The Symptoms of Hypnosis" (pp. 58-191) and "The Theory of Hypnotism" (pp. 218-72), give (the one) more comprehensive information and (the other) a more carefully and soberly thought-out view of the perplexing subject than can easily be met with elsewhere. Special recognition should also be made of the good sense that marks the author's treatment of "The Medical Aspects of Hypnotism" (pp. 290-338). Besides some helpful recommendation of other books, there are two excellent Indexes of Contents and Names, the latter giving, with many significant dates, a remarkably full list of those who have contributed early or late to the advance of hypnotic science. Altogether, the book is one to be commended to the psychological reader.

The Psychology of the Belief in Objective Existence. Part i. "*Objectiva* capable of Presentation." By JULIUS PIKLER, Doctor of Political Sciences, Lecturer on Philosophy of Law in the Royal University of Budapest, &c. London : Williams and Norgate, 1890. Pp. 118.

This essay, written by a Hungarian author in English as well as worked out upon the traditional lines of English psychology, has for postscript the Discussion-note which appeared in the last No. of *MIND*, challenging the reply now made to it above, p. 545, by Mr. Stout. The essay itself, quite apart from the circumstances of interest attaching to its authorship, is no common piece of work, and will here receive the more detailed notice which it deserves. For the present it is broken off with promise of a Second Part, in which similar account will be given of the various classes of "*Objectiva* incapable of Presentation".

A Protest against Agnosticism. The Rationale or Philosophy of Belief. By P. F. FITZGERALD. London : Kegan Paul, Trench, Trübner & Co., 1890. Pp. viii., 155.

The present volume, while it is somewhat more condensed and orderly in exposition than the author's *Treatise on the Principle of Sufficient Reason* (see *MIND* xii. 614), is similarly illustrated by the results

of very varied reading. Beneath the profusion of philosophical and poetical quotations there is a distinctive vein of thought. The ideas with which the author is preoccupied are, as before, the notion of the possibility of attaining, logically as well as mystically, a knowledge of absolute Being, and at the same time the conviction that distinctions of personality are of permanent significance. The reconciliation is found in the idea thus expressed: "It is wholeness of Being *through union with its counterpartal soul* for which each human spirit, even though it may be unconsciously, yearns. This is the lesson of reflective reason".

The Colours of Animals, their Meaning and Use, especially considered in the case of Insects. By EDWARD BAGNALL POULTON, M.A., F.R.S., &c. With Chromo-lithographic Frontispiece and Sixty-six Figures in Text. ("International Scientific Series," vol. lxviii.) London: Kegan Paul, Trench, Trübner & Co., 1890. Pp. xv., 860.

Mr. Poulton has here given a very interesting account of the phenomena of colour in animals. His method has been, not to attempt even a general description of all the phenomena—which, of course, would not have been possible within the limits—but to illustrate principles by examples, chosen especially from Insects, and more particularly from the single order, Lepidoptera; the material having been provided to a very considerable extent by his own researches. The greater part of the book seeks to explain Protective and Aggressive Resemblance, Warning Colours, Mimicry, and the related facts, by the accepted principles of Natural Selection. In this part, it may be noted, as a point of psychological interest, that insect-eating animals (such as lizards) are found to "learn by experience". The most controversial chapters of the book—and, at the same time, those that come most within the province of the psychologist—are chaps. xv. and xvi. ("Colours Produced by Courtship," "Other Theories of Sexual Colouring"). Here Mr. Poulton appears as a very strong supporter of Darwin's view as to the existence, among higher animals, of Sexual Selection, or "female preference based on æsthetic considerations". This last point, it may be noted, is really the controverted point. Mr. Wallace, for example, admits a kind of "sexual selection," but a selection of the male for his greater "activity," or "surplus vitality," or some such non-æsthetic reason; beauty in animals (and plants) being, frequently at any rate, a result simply of organic laws of growth. Thus, without the admission of æsthetically determined sexual selection, it would be quite possible to accept Mr. Poulton's view that "the tendency towards the development of higher forms of beauty is rigorously kept in check by natural selection. Remove the check or render it less exacting, and the tendency at once manifests itself." The decisive question is, whether there are sufficient positive grounds for supposing a strictly æsthetic selection. Some of Mr. Poulton's arguments rest on a rather unquestioning anthropomorphism; as, for example, when he speaks of "an insect's sense of what is *beautiful*," or when he contends that "our standards of beauty have been largely created for us by insects"; though, of course, we may find in the end that this is the only possible way of putting it. Is there any method by which it can be shown experimentally that, in some particular instances, the cause of the sexual selection that must be admitted to take place can be nothing short of æsthetic preference?

Counsels and Maxims: being the Second Part of ARTHUR SCHOPENHAUER'S *Aphorismen zur Lebensweisheit*. Translated by T. BAILEY SAUNDERS, M.A. London: Swan Sonnenschein & Co., 1890. Pp. 182.

For convenience of publication, Mr. Saunders has divided his transla-

tion of Schopenhauer's *Aphorismen zur Lebensweisheit* into two parts. The first part, entitled *The Wisdom of Life*, was noted in *MIND*, No. 59, p. 421. In the present volume, with its new title, a new series of chapters has been begun, "for the sake of appearances," though there is no such division in the original. The merits of the translation are sustained to the end.

On Sameness and Identity. A Psychological Study: Being a contribution to the foundations of a Theory of Knowledge. By GEORGE STUART FULLERTON. Philadelphia: University of Pennsylvania Press. Pp. 156.

Prof. Fullerton has once before set himself the task of clearing up a difficult fundamental conception of philosophy (see *MIND* xii. 468). The problem of infinity, dealt with in his former essay, reappears at the end of the present monograph; the question dealt with in the penultimate section being that of infinite divisibility, which is solved in accordance with Berkeleyan principles. Realism (in its modern sense) is discussed in the section immediately preceding, and is dismissed as involving confusions of different meanings of the word "sameness". As may be seen from the nature of these final disquisitions, the metaphysical bearings of the abstract discriminations between senses of the term are not forgotten. The discriminations themselves are very careful; seven senses of the word "sameness" being distinguished. Following upon the definitions of these senses, there are sections containing the application of them to "self" and "not-self," whether regarded as phenomenal or noumenal. Part i. (pp. 5-66), containing the abstract discussion of "The Kinds of Sameness," is followed by an "Historical and Critical" part ii. (pp. 67-158), dealing with the senses of the term as employed in philosophical arguments from Heraclitus to the present time. The author does not propose any rigid limitation of the term "sameness" in philosophy to one particular sense. "The word," he would rather conclude, "has many meanings, and we can hardly say that any one of them is illegitimate. It is merely illegitimate to confound them." "Identity" he looks upon as a kind of limiting conception. The common notion which unites all the kinds of sameness is the notion of similarity. When the dissimilar elements have diminished to zero, then there is "identity". The word is somewhat loosely used, but it may be stated generally that "men use the word identity to mark certain kinds of sameness in which there is little or no consciousness of duality, and they are not inclined to use it to mark sameness in which things are recognised as similar but clearly distinct". The discussion of the sameness of the formal elements in consciousness (sec. 17) may be specially noted. The result is that if two successive occurrences of a material element—say, a colour-sensation—are only similar and not numerically the same, this is also the case with two successive occurrences of a formal element—say, "the consciousness of triangularity". "To say that the formal element is not a thing, but an activity, does not alter the position. If an activity is enough of a thing to be talked about and distinguished from other things, we may surely recognise an activity in consciousness yesterday as numerically different from an activity in consciousness to-day." [The author desires that the words "be recognised as resembling" be substituted for "resemble" on p. 12, line 18, and p. 49, line 80; and "second" for "fourth" on p. 68, line 24.]

Etude sur François Bacon suivie du Rapport à l'Académie des Sciences Morales et Politiques sur le Concours ouvert pour le Prix Bordin.

Par J. BARTHÉLEMY ST. HILAIRE, Membre de l'Institut, Sénateur.
Paris : F. Alcan, 1890. Pp. vii., 208.

M. Barthélemy St. Hilaire's study of Bacon extends over pp. 1-109. The rest of the volume contains his report on the four memoirs sent in for the Bordin prize offered by the Academy of Moral and Political Sciences. In the study, perhaps greater stress is laid on Bacon's defects as a thinker than on his merits; but almost always the right view seems to be taken as to what is the nature of his merits and defects. His literary style, the author allows, cannot be overpraised. "The true glory of Bacon" is rightly assigned in his own phrase, when he describes himself as the "trumpeter" of the experimental method. He did not discover the method; nor was he the first to formulate the process of induction, this having been done by Aristotle. Metaphysics he on the one side sacrificed to theology, on the other side subordinated to science. He failed therefore to attain to the philosophical position of Aristotle, whom he cast aside. "In recommending the experimental method with so much constancy and energetic conviction, he certainly propagated it; he caused its utility to be better appreciated by those who were employing it without sufficiently reflecting on it. But that is not precisely a scientific influence" (p. 152). So far as real originality of scientific thought is concerned, he was surpassed by his predecessor and namesake Roger Bacon.

Métaphysique et Psychologie. Par. TH. FLOURNOY, Docteur en Médecine, Privat-docent de Philosophie à l'Université de Genève. Genève: H. Georg, 1890. Pp. vii., 185.

A very good statement of the parallelism of mental and physiological processes from the scientific point of view; the author's aim being to distinguish clearly the psychophysical position of the experimental psychologist from every metaphysical doctrine as to the relation between mind and body. He first shows how the "principle of parallelism or concomitance" has now become a "constitutive axiom" of physiological psychology; and then proceeds to explain how he finds it possible to make reserves in favour even of metaphysical free-will (for example) without giving up the principle as a postulate of all strictly scientific investigation. Personally he inclines to a doctrine which he describes as "agnostic Moralism" and places on the ground of Kant's distinction between phenomenal determination and noumenal freedom; but what he is chiefly anxious to show is the possibility and necessity of setting physiological psychology free from all metaphysical implications. Psychology as a positive science must follow the example of other sciences by ignoring the philosophic difficulties at its base. It must make no attempt to explain *why* mental and physical phenomena are concomitant, but must simply accept them as being so. The two sets of phenomena being irreducible for science, a *scientific* "principle of dualism or heterogeneity" is to be recognised beside the principle of parallelism or concomitance. While it affirms that all psychical processes are accompanied by some physical process, the axiom of concomitance does not affirm that, conversely, all physical processes are accompanied by some internal psychical process. This may or may not be so, but it is a metaphysical completion of the scientific doctrine, and, as such, positive psychology has no interest in it. If psychology, to become a positive science, must become as far as possible physiological, physiology, on the other side, is in no way bound to become psychological. Its progress, on the contrary, consists in more and more complete explanation of its special facts by the objective sciences that precede it.

Psychologie de l'Apperception et Recherches expérimentales sur l'Attention: Essai de Psychologie physiologique. Par GEORGES DWELSHAUVERS, Docteur en Philosophie et Lettres. Bruxelles: E. Guyot, 1890. Pp. xi, 179.

This essay submitted as a "thèse d'agrégation" to the faculty of philosophy and letters in the University of Brussels has a double interest. First, in point of content. Besides recording at length (pp. 61-104) a protracted series of original experiments on the effect which a warning signal, at different intervals, has upon the reaction called forth by a definite stimulus, it affords a comprehensive view of the work that has been done, especially by or under the lead of Prof. Wundt, towards a psychophysical theory of Attention. It was at Leipsic that the author, last year, made his experiments, and the report of them is concurrently given in the latest No. of the *Phil. Studien* (see below, p. 587). Though they were cut short prematurely, Prof. Wundt considers them, so far as they go, of substantial value; and more eager acceptance of the experimental method in psychology there could not be than is proclaimed (and justified) through all the rest of the essay. The other interest attaching to the thesis arises from its rejection by the Brussels faculty, at the instance of Prof. Tiberghien, who for so many years has upheld the standard of philosophic rationalism (in the spirit of Krause). The author's enthusiastic advocacy of the newer psychological methods and hopefulness of philosophical reform to come from them have thrown the aged thinker into consternation. Having joined in sending the young Belgian student to Leipsic for instruction in the experimental method, he now starts back in horror at the revolutionary aspirations disclosed by the ardent neophyte. How, he asks in accents of mournful reproach, how can he go on defending, in his academic chair, the cause of human liberty against the clerical party, if "Reason," which nerves his arm, is henceforth, within the walls of the free Brussels University, to be spoken of as subordinate to "Experience"? It is, altogether, a very curious little correspondence that is here printed as Appendix to the essay—curious because the "liberal" Brussels professor would use against the Catholic party precisely the same weapon which, everywhere else (and doubtless also in Brussels itself), that party likes to brandish in the face of those whom it considers its philosophic foes. For the rest, it strikes one as a little surprising that only now upon this occasion such an academic declaration should be launched in the country which Prof. Delboeuf of Liège (no weak-kneed "liberal") has for so long kept well to the front of the psychophysical movement.

ICILIO VANNI, Professore ordinario di Filosofia del Diritto nella R. Università di Parma. *Il Problema della Filosofia del Diritto nella Filosofia, nella Scienza e nella Vita ai Tempi nostri.* Verona: Donato Tedeschi e Figlio, 1890. Pp. 88.

The author has already set forth in outline the reasons for giving Sociology a place among the sciences (see MIND xiv. 298). He now proceeds to inquire whether the existence of a Philosophy of Law is compatible with the definite constitution of sociology and with the principles of positive or scientific philosophy generally. His conclusion is that in spite of the tendency of an ill-understood Naturalism to deny that there can be any properly philosophical treatment—going beyond the scientific treatment—of social facts, the philosophy of law, as of other departments of social life, must retain its place among the philosophies of the practical arts as conceived by Mill. In virtue of its "critical" function, philosophy has to examine

the first principles of all sciences, whether natural or social, and the ends of all practical arts. Again, the conception of philosophy as universal "synthesis" requires that every special science having social phenomena for its subject-matter should be brought under the conception according to which all the elements of social life are viewed as factors of a general human evolution.

Tonpsychologie. Von CARL STUMPF, Professor der Philosophie an der Universität zu München. Zweiter Band. Leipzig: S. Hirzel, 1890. Pp. xii., 582.

Prof. Stumpf (who has in the interval passed from Prague to Munich) here continues the very important work which he began in 1888; see *MIND* ix., 161, 598. Occupied in his first volume with the judgment of successive tones, he does not in the second get beyond our consciousness of simultaneous tones, apart from any question of properly musical apprehension. This is still deferred to a third and a fourth volume, to follow as soon as he may be able to compass them—but not, he thinks, very soon—in the midst of his general philosophical duty. If he may thus seem to have bestowed an excessive amount of time and space upon the bare material elements of music, it is not to be forgotten that his subject is Tone-psychology, as a whole, and that he makes this the occasion for enlarging upon questions of general psychological principle. This he did to excellent purpose and effect in his previous volume, and the same procedure is now maintained. The two volumes, having together a certain completeness by themselves, are here by a happy thought provided with a good Index. Critical Notice (of the new volume) will follow.

Geschichte der Sprachwissenschaft bei den Griechen und Römern mit besonderer Rücksicht auf die Logik. Von Dr. H. STEINTHAL, a.o. Professor für allgemeine Sprachwissenschaft an der Universität zu Berlin. Zweite vermehrte und verbesserte Auflage. Erster Teil. Berlin: F. Dümmler, 1890. Pp. xvi., 874.

Here Dr. Steintal publishes pt. i. of a second edition of his *History of the Science of Language among the Greeks and Romans*, first published in 1868. The alterations, though affecting this part to some extent, are, he tells us, not so extensive as in the second part now in the press. In the first edition the work appeared in a single volume. It is now divided so that the contents of the first volume belong essentially to logic, those of the second to empirical grammar. This is in accordance with the historical circumstance, dwelt on by the author, that the dialectical investigation of speech by the Greek philosophers preceded the elaboration of a "true grammar" by the philologists of Alexandria. The Introduction (pp. 1-40) describes the germs of grammar in those peoples that can be said to have arrived at any grammatical consciousness. Only two—the Indians and the Greeks—of themselves and without external stimulus developed anything amounting to a real grammar; the Indian grammarians having been, as the author seeks to show, in the most favourable position for grammatical analysis. In the rest of the volume, Plato, Aristotle, and the Stoics (with whom the dialectical analysis of language in antiquity is regarded as having reached its termination) are dealt with.

Sittliches Sein und Sittliches Werden. Grundlinien eines Systems der Ethik. Von THEOBALD ZIEGLER. Zweite unveränderte Auflage. Strassburg: Karl J. Trübner, 1890. Pp. ix., 151.

Five Lectures ("Problem and Method of Ethics.—Historical Survey," "The Origin of Morality," "The Nature of Morality," "Duty and Virtue," "Goods and Highest Good"), now published with additions and remarks, and indexes of names and subjects. The author begins by showing that ethics has not to create morality; it is first a descriptive science. Under the rule of custom men had long practised morality before they began to theorise upon it. Description of actual good conduct has to be followed in the second place by statement of its grounds. Since conflicts arise between rival social authorities, ethical science has next to become "critical". Its most important problem is to find a criterion of action. Finally, it cannot avoid becoming "speculative-metaphysical". Besides conflict of authorities, there is an opposition between authority generally and freedom—between the social customs in which morality has its origin and the conscience of the individual. This opposition also comes within the competence of ethical science. As to the criterion, the author's general results are these. "The welfare of all, as it is the rule and the principle, so also it is the end of all ethics, the highest good itself." "When I do with consciousness what objectively corresponds to the principle of welfare, then I am also subjectively a morally good man." The argument is illustrated by appropriate references to current topics of social morality.

Ein Collegium Logicum im XVI. Jahrhundert. Mittheilungen aus einer Handschrift der k. Universitätsbibliothek in Tübingen. Von Dr. CHRISTOPH SIGWART. Freiburg i. B.: J. C. B. Mohr (Paul Siebeck), 1890. Pp. 42.

Prof. Sigwart of Tübingen here gives representative extracts, of peculiar interest, from a transcript preserved in the university library there, of the lectures on Aristotle's *Prior Analytics* delivered 1565-7 by Jacob Schegk. Schegk had been professor of medicine at Tübingen from 1558, and being renowned as an Aristotelian expositor was further charged from 1561 with the duty of lecturing, as professor of philosophy, on the *Organon*, in place of one Mendlin (Maentlin) under whom the philosophical reputation of the university had died away. Mendlin, it appears, would not at once retire, and it was not till 1564 that Schegk's logical prelections began. Such was his reputation that they were then attended not only by students but also by several of his professorial colleagues; one of whom, the well known scholar Martin Crusius, was the note-taker or for the most part full and accurate reporter whose MS. has been preserved. The lectures in 1564, presumably, began with the earlier treatises of the *Organon*. Crusius's MS. takes up the exposition in Nov. 1565 with the *Prior Analytics*, to which Schegk devoted as many as 174 lecture-hours—117 to bk. i. and 57 to bk. ii.—spread over nearly two full years, before passing without pause to the *Posterior Analytics*. It was thus a very elaborate course of which the main part has by Crusius's exemplary diligence been preserved, and of which Prof. Sigwart has now with admirable care and all necessary elucidation given these specimens. Very curious and instructive they are in many ways. We see in Schegk a really vigorous and able teacher, master of his text; which at times he expounds word for word before digesting the doctrine into dictation-paragraphs and adding illustrations, while at other times he counts upon his hearers' being able at once to follow his free exposition of the easier passages. Nothing has ever been put in print which brings us so directly face to face with the best academic work of the closing middle age. Crusius's transcript is all the more valuable because it embodies also the occasional colloquial remarks in

German (or Latin) which the lecturer would let fall in the midst of his regular (Latin) exposition. These in general are meant the better to drive home his meaning, but sometimes they are of much human interest, as when, getting confused over a logical example at the end of an hour, Schegk breaks off: "*Cras emendabo, ich habe mich selbst geirrt da*". Another time, he has this: "*Non potui praeterire haec hactenus, etiamsi jam non potuistis omnia forte intelligere; tamen, cum acceperitis mea commentaria, intelligetis. Ich kans nit mit einem traechter eingiessen.*" And here is the epilogue to that part of the course which Crusius gives us: "*Cras incipiemus ipsa posteriora Analytica. Nihil, nisi forte necesse erit, dictabo. Ideo emite vobis eorum commentaria, Tybingae [Sigwart has to correct this to Basel, as the true place of publication of Schegk's commentary on the *Post. An.*] impressa. Sparet das gaelt ein waenig, et emite illum librum.*" Interspersed are jottings by Crusius, from which much is to be learned about the distribution of the academic sessions and the holidays that divided or interrupted them. We have also the sanitary condition of Tübingen brought before us in the fact that from 80th October, 1566 the lectures had to be given at Esslingen, on account of plague which did not permit of return to the university-seat so long as the *Prior Analytics* held out (and indeed for some weeks longer—fourteen months altogether). The (second) wife, the six-year-old "*dulcissima filiola,*" and the aged mother of Crusius, as he tells us, all fell victims to the pest in its first weeks. Nine months afterwards the lonely professor consoled himself with a third wife at Esslingen, and over the marriage lost Schegk's lectures between 12th and 16th August, but was able to fill them in from the notes of another hearer. Prof. Sigwart's labour upon the MS. deserves very warm acknowledgement.

Die Geschichtsphilosophie Hegel's und der Hegelianer bis auf Marx und Hartmann. Ein kritischer Versuch von Dr. PAUL BARTH. Leipzig: O. R. Reisland, 1890. Pp. 149.

A very thorough study of the "philosophy of history" of Hegel and his successors (so far as they have adhered to Hegelian principles). Under his general title the author deals not only with the philosophy of history strictly so called, but also with the history of religion, art and philosophy. His aim is to show the error of Hartmann's remark that only the form, not the content, of the Hegelian philosophy is antiquated. His method is to bring the results of modern positive inquiry in all the fields dealt with into comparison with the deduction, by Hegel or his successors, of the course of history from the principles of 'dialectic'. A particularly full refutation (pp. 40-61) is given of the doctrine of Marx that all other social activities are determined by the economical constitution of society; the independence (in a great measure) of political, legal, religious and philosophical development being established by reference to the work of historical investigators. Marx's doctrine is found to have been determined in form by the influence of the Hegelian philosophy. Its real merit is in taking into account the reaction of economical structure on society as a whole. Its defect, due to its Hegelian origin, is in making economical factors determine everything. In content it is the opposite of Hegel's own view, which makes "the idea" omnipotent; but this is equally erroneous. The employment of the Hegelian method leads only to distortion of the facts, which always have to be introduced surreptitiously. The "secret of the Hegelian dialectic" is simply the confusion of contrary with contradictory opposition. It is only by this confusion that Hegel and his disciples can bring positive facts within their dialectical process at all. Dr. Barth's book has been written not without a view to

recent developments of Hegelianism in England and America, of which he shows full knowledge; as he does also of those modern English (as well as French and German) inquirers into the early history of institutions whose progressive results he would oppose to the illusory combinations of the Hegelians.

Die ethische Bewegung in der Religion. Von STANTON COIT, Ph. D. (Berlin), Sprecher der South Place Ethischen Gesellschaft in London. Vom Verfasser durchgesehene Uebersetzung von GEORG VON GIŻYCKI. Leipzig: O. R. Reisland, 1890. Pp. 227.

This translation by Prof. v. Giżycki of Dr. Coit's addresses delivered to the South Place Ethical Society reads very well in German. One may wonder, however, that the collection has not been previously published in English, as doubtless the separate addresses have been. The idea running through them all is expressed in the title—"The Ethical Movement in Religion". They are all marked by an enthusiasm for social reform, together with a belief in the supreme importance of the inner moral life both in itself and as the starting-point of everything to be done for improving the external ordering of things. Morality, conceived in this way, is not put forward as a competitor with existing religions, but as capable of alliance with them, and yet as having an independent life of its own, which is only not called "religious" because religion implies, over and above exalted ethical feeling, submission to some Power, whether external or immanent—and this is not an essential part of morality. Theoretical agreement as to the basis of ethics is to be looked forward to as a distant end, but it is not to be sought first of all. The aim for the present must be to attain practical agreement as to conduct; in the confidence that theoretical agreement will come afterwards as morality gradually penetrates all religions and displaces ideas inconsistent with devotion to ethical culture as the supreme interest of life both for the individual and for society.

Kurzgefasste Logik u. Psychologie. Von Dr. K. KROMAN, ord. Professor der Philosophie an der Universität zu Kopenhagen. Nach der zweiten Auflage des Originals unter Mitwirkung des Verfassers ins Deutsche übersetzt von F. BENDIXEN. Kopenhagen: J. Frimodt; Leipzig: O. R. Reisland, 1890. Pp. xii, 889.

This manual by the Danish author of *Unsere Naturerkenntnis* (see MIND ix. 160) has some exceptional qualities that call for more notice than they can receive on the present occasion. We will the more endeavour to return to it in MIND because the author's earlier work failed, through various circumstances, to get here anything like the amount of attention due to its great freshness and vigour of treatment. Fortunately, his main epistemological positions get restatement in the present (more elementary) book, which, after being favourably received in its native Denmark, is now, in effective German translation, made accessible to a far wider public. The conjunction of Logic and Psychology, in that order, is, though not without a certain reason (of which more later), still somewhat artificially made. The author, however, in both divisions pursues so independent a course and writes so suggestively that he is to be judged much more by the matter of each than upon any consideration of mere external form. Two things are noted by himself as specially significant in his psychological section—a hostile criticism, from his distinctively *scientific* point of view, of the current two-aspect theory of mind and body, and his rejection of 'Association by Similarity'. This latter is a topic to which, from different sides, also other Danish

psychologists, notably Höfding and A. Lehmann, have given special attention.

Die Gesetze und Elemente des wissenschaftlichen Denkens. Ein Lehrbuch der Erkenntnistheorie in Grundzügen, von Dr. G. HEYMANS, Privatdocent der Philosophie an der Universität zu Leiden. Erster Band. "Allgemeiner Theil und Theorie des mathematischen Denkens." Leiden : S. C. van Doesburgh, 1890. Pp. 270.

This is the first volume of a text-book of Theory of Knowledge and treatise on Method. It is divided into an Introduction (pp. 1-42), a General Part on Formal Logic (pp. 45-121), and a Special Part on the Mathematical Sciences; those dealt with at present being Arithmetic (pp. 125-166), Geometry (pp. 167-258) and Kinematics (pp. 259-270). Theory of Knowledge, in the author's view, is a "psychology of thought". We have to find, in the first place, what elements of knowledge are experientially given. These being found insufficient to constitute actual knowledge, we have next to determine what subjective data are added by the mind. The most convenient objects of this investigation are the sciences; scientific knowledge being more readily submitted to exact analysis and synthesis than the knowledge of common life, though this also involves the same elements. Accordingly we discover in science the "universal human" causes of certitude; and the psychological ascertainment of those causes is at the same time the justification of the elements contributed by the mind to knowledge. Dealing with formal logic, the author opposes to the "empiristic theory" of Mill and to the "geometrical theory" of Lange and others the view that "logical laws are not laws of things, but exclusively laws of thought". In his treatment of geometry, he seeks to place the Kantian attribution of geometrical knowledge to "subjective factors" on a psychological foundation by the more precise determination of those factors; here following Riehl, whose "hypothesis" that geometry is to be explained from the date of the "sense of motion" he accepts as at least "very probable".

Der Optimismus und Pessimismus in der jüdischen Religionsphilosophie. Eine Studie über die Behandlung der Theodicee in derselben bis auf Maimonides. Von Dr. H. GOITEIN. Berlin : Mayer & Müller, 1890. Pp. viii., 112.

A very interesting and instructive account of the treatment of the problem of evil in Jewish religion and philosophy. Dr. Goitein's "study" is divided into a first part dealing with "Theodicy in the Biblical and Talmudic Scriptures" (pp. 1-84) and a second part dealing with "Theodicy in the Jewish philosophy of the Middle Ages" (pp. 85-111). The mediæval philosophers whose doctrines are expounded are (1) Saadja, (2) Joseph ibn Zaddik, (3) Jehuda Halevi, (4) Abraham ibn Daud, (5) Moses Maimonides. Neither Jewish philosophy nor religion, the author seeks to establish against Schopenhauer, is uniformly optimistic. In reality the characteristic attitude of Judaism, manifest at a very early stage and finally affirming itself after all the influences from ancient philosophy, Christian gnosticism, &c., undergone by Jewish thinkers, is optimism in "view of the world" together with pessimism in "view of life". Pessimism as regards life in the present is overcome by a "transcendent optimism" having reference either to life on earth in the future (as with the prophets) or to a future life of the individual (as with philosophers influenced by Greek thought). The problem of an "immanent theodicy," or justification of the evils of life as part of a providential government of the world, is constantly attempted by the Jewish

philosophers, but receives no satisfactory solution. The only tenable position for the religious as for the philosophical consciousness is in the end renunciation of every theodicy that is not "transcendent". This renunciation is common to the Jewish religious consciousness and to the Kantian philosophy.

Glauben oder Wissen? Eine Untersuchung über die menschliche Geistesseinheit auf biologischer Grundlage. Von Prof. Dr. KARL FISCHER, Gymnasialdirektor. Gotha: F. A. Perthes, 1890. Pp. 60.

Setting out from a consideration of man's biological predispositions as compared with those of animals, the author concludes that only by the act of will involved in belief could man have become what he is. Purely "objective" knowledge, knowledge without emotion, is diametrically opposed to human nature. The "autonomy of science" is a fiction. Science, in reality, rests on an "unscientific" foundation of feeling and belief. The division imagined between religious belief and scientific knowledge, therefore, does not exist. Science and religion, when philosophically examined, are seen to have similar grounds. Neither of them is "presuppositionless". Belief in general arises from a feeling of "dependence," from which human nature in vain strives to emancipate itself. This being recognised, there is nothing to hinder us from conceiving the sciences, whether of nature or man, together with a religion based in revelation, as forming a single system without any break or opposition of its parts.

Independence. Stanzas by G. TH. MEJDELL. Christiania: A. Cammermeyer, 1890. Pp. 46.

This daintily printed collection of sentences or thoughts (rather than "stanzas") is concerned with an old theme, but has an originality of its own. The theme is the old one of each man's duty to rise above external circumstances and live his own life—to become and be himself. It is turned over by the Norwegian author in a threefold series of reflexions; to find the most suitable expression for which he began four years ago, at the mature age of 36, to teach himself English. Thus he describes his "opuscule" as "an experiment to corroboration of a theory: its gospel is autodidacticism and itself an offshoot of autodidacticism". With a purely literary knowledge of English, his expression is, in general, very quaint; but it is a quaintness that has curious charm and force, and there is always masculine thought behind. Take one or two sentences for illustration at random:—"It has become the vogue to sing the praise of childhood as the happy age. The children of the nineteenth century will sparely join in this hallelujah, knowing at once too much and too little to do cherubs". . . . "Lawbound is the universe from infinity of beginning to infinity of end—infinity not the oppositeness of the finite but the finite's consummation, and chance the infinite compound of finite causes". . . . "The drip, drip, dreariness of steady application is nothing to the bore. But to bear boredom and no bore be—is the blend of parts that conquers the world." (Italics not the author's.) Readers of sentences or clauses like these will "sparely" refrain from wishing to know more of such an "autodidact".

THE following NEW EDITIONS have been received:—

The Methods of Ethics. By HENRY SIDGWICK, Knightbridge Professor, &c. Fourth Edition. London: Macmillan & Co., 1890. Pp. xxix., 522.

[A fourth edition in sixteen years from its original publication testifies both to the standard character of this work and to the abiding English interest in at least ethical speculation. Alterations are now made in the way of inserted addition, to meet criticisms by Dr. Martineau, Prof. Fowler, Mr. Rashdall and Prof. v. Giżycki, and in the way of substitution, to deal with Dr. Martineau's ethical theory in its later-published final form. The positions taken up by Prof. Sidgwick on the topics involved in these alterations have, at one time or another, had prior statement in the pages of *MIND*. By compression or omission of other matter, with occasional shifting of digressions from text to foot-notes, room has been found for the alterations without adding a single page to the length of the third edition. The apparent extension, pp. 506-22, is taken up with a very serviceable Index made by Miss Jones of Girton College. With this, added to the analysis of the whole main argument, given from the first in such excellent form under the head of "Contents," readers have all the help they could desire to effective use of the now celebrated book.]

Character as seen in Body and Parentage. By FURNEAUX JORDAN, F.R.C.S. New Edition. London: Kegan Paul, Trench, Trübner, & Co., 1890. Pp. viii., 111. [A reduced, re-arranged, for the most part re-written, and generally simplified new edition of the author's *Anatomy and Physiology in Character*, noticed in *MIND* xii. 298. For his old division of "shrewish" and "non-shrewish," he now generally substitutes "active unimpassioned" and "reflective impassioned". Otherwise, the old positions are maintained—all the more effectively because of the condensed presentation.]

RECEIVED also:—

- A. Marshall, *Principles of Economics*, vol. i., Lond., Macmillan, pp. xxviii., 754.
- C. Bennett, *The Modern Malady*, Lond., E. Arnold, pp. xvii., 184.
- P. Carus, *The Ethical Problem*, Chicago, Open Court Pub. Co., pp. vii., 90.
- P. Regnaud, *Principes généraux de Linguistique Indo-Européenne*, Paris, Hachette, pp. 118.
- E. Grosse, *H. Spencer's Lehre von dem Unerkennbaren*, Leip., Veit, pp. vi., 119.
- V. Cathrein, *Moralphilosophie*, Bd. i., Freib. i. B., Herder, pp. xv., 522.
- W. Wetz, *Shakespeare vom Standpunkt der vergleichenden Literaturgeschichte*, Bd. i., Worms, Reiss, pp. xx., 579.
- L. Fischer, "*Cogito ergo sum*," Leip., Bergmann, pp. 58.
- A. Bilharz, *Metaphysik als Lehre vom Vorbewussten*, Wiesbaden, Bergmann, pp. vii., 158.
- A. Hjelmárus, *Formella Logiken baserad pa Identitetsprincipien*, Lund, P. Lindstadt, pp. 188.

NOTICE will follow.

IX.—FOREIGN PERIODICALS.

THE AMERICAN JOURNAL OF PSYCHOLOGY.—Vol. iii. No. 2. C. F. Hodge—A Sketch of the History of Reflex Action, I. [Based upon notes from the original sources made about 1880 by Dr. Stanley Hall, who meant to treat the subject himself till he was forestalled in 1881 by C. Eckhard. The introductory chapter given in last No. was from Dr. Hall's own hand, and Dr. Hodge aims now at utilising the notes in the spirit there indicated—namely, so as to give prominence to the psychological implications of the steps in the development of the doctrine, whereas Eckhard's interest was mainly physiological. The present section works down to C. Bell, through Descartes, Willis, Astruc, Whytt (with cross-reference to Haller), Unzer, Prochaska, Legallois, as chief handers-on of the torch.] E. A. Kirkpatrick—Observations on College Seniors and Electives in Psychological Subjects. [A six-page summary of answers furnished by over 200 American students in the larger colleges or universities to four general questions (propounded at the instance of Dr. G. S. Hall) about the motives, range, &c., of their psychological study.] E. C. Sanford—A simple and inexpensive Chronoscope. [Constructed upon a suggestion made forty years ago by Kaiser, the astronomer of Leyden, as to the applicability of the principle of the Vernier to the exact measurement of time. The "time-vernier" here described suffices "for the demonstration of nearly all the more important facts of simple reaction-times, and abundantly so for the longer and more complicated reactions with discrimination and choice, and for association-times, where the average variation of the single tests in a series may itself amount to a tenth of a second or more".] Psychological Literature. [Nervous System, Experimental, Psychiatry, Criminology, Heredity and Sex, Miscellaneous.] Psychology in American Colleges and Universities. [Accounts of their work, past or projected, by different Professors.] Notes.

REVUE PHILOSOPHIQUE.—An. xv., No. 7. G. Fonsegrive—L'homogénéité morale. [On what conditions can the psychological "heterogeneity" of human nature give place to the "homogeneity" aimed at by moralists? To decide this question, the elements of personality must be reduced to a small number of systems. It will then be seen which system can serve as centre to the rest. Analysis reveals (1) the "personnage sensitif" (2) the "personnage sentimental" (3) the "personnage verbal . . . consistant on inconsistent"; together with a greater or less number of "personnages subsidiaires, caractères d'emprunt". The "verbal personnage" is the reflexion of current morality, and accordingly not, even by itself and apart from conflicts with the others, perfectly consistent or homogeneous. Only by the development of the "verbal" into the "rational" personnage can the consistency necessary for morality be attained; and then not without conflict with the two other personages. At the same time, the verbal personnage can only retain dominance by incarnating itself in the personages of sense and sentiment, "which alone have a direct action on our muscles, and, through them, on our actions". The natural ally of reason against sense is sentiment; but some kind of ascetic discipline is necessary as a means to the attainment of complete moral consistency.] G. Sorel—Contributions psychophysiques à l'étude esthétique

(fin). [Continues the argument against the reduction of beauty to unconsciously perceived mathematical relations; architecture being now dealt with.] H. Joly—*La folie de J.-J. Rousseau*. [Defends from accusations of "madness" the active and creative period of the life of Rousseau. The scientific mark of insanity is a "disaggregation" of the personality, showing itself in a break with past character or with all social surroundings. But those disorders of Rousseau's character by which his genius was troubled can be traced through his whole past, and they did not exclude intellectual consistency. Nor was he a completely isolated personage; for, while he was in violent opposition to one portion of contemporary society, he was the first to bring adequately to consciousness the aspirations of another portion. In the latter part of his life indeed, tendencies to madness appeared; but where the signs of it are usually sought—as in the "mania of persecutions"—the symptoms that have been held to indicate it are utterly different from those described by alienists under the same name.] A. Binet—*La perception des longueurs et des nombres chez quelques petits enfants*. [Experiments on the powers of two children (aged, respectively, four years and three months and two years and a half) to estimate lengths and numbers. The eldest of the two can estimate small differences of length almost as accurately as an adult. Verbal numeration having been taught only up to three, the child cannot distinguish numbers accurately beyond six; (she can distinguish with certainty between five and six counters, but not beyond); anything beyond is estimated as if it were a continuous magnitude.] Analyses, &c. (J. Veitch, *Knowing and Being*, &c.). Rev. des Périod. Société de Psychologie Physiologique (Ch. Henry—*Sur une loi générale des réactions psycho-motrices*). No. 8. A. Espinas—*Les origines de la technologie* (i.). [An account of the "physico-theological" stage of human belief as regards "technology," or the arts subservient to life. The physico-theological doctrine is found to have been the dominant one in Greece just before the historical period, and is illustrated particularly from Homer and Hesiod. At this stage of belief the practice of the arts was according to customs thought of as divinely sanctioned; and neither gods nor men were placed in explicit opposition to nature. Previously there had no doubt been an unconscious social growth of arts, and this growth continued to go on under the sanctions of religion. Later, the explicitly theological idea of "supernatural" intervention, and the idea of art, or human intervention, become opposed in different ways to "nature".] A. Binet—*L'inhibition dans les phénomènes de conscience*. [Several classes of psychological phenomena—such as the rectification of an illusion and the suppression of sensorial representations by hypnotic suggestions—are brought under the conception of "negation"; this having been first determined to be the opposition of two representations, equally positive, one of which "contradicts" the other. The point to be noted is that the antagonism is of psychological nature, and is produced because the representations cannot form part of the same synthesis. In "competition of the two visual fields," for example, suppression of one image by another is due to their being "contradictory" in this sense. This phenomenon of "antagonism and exclusion" is not precisely equivalent to physiological inhibition; but it may conveniently be called "inhibition" in psychology. Perception of the third dimension in monocular vision is briefly discussed. M. Binet has discovered independently that the perspective of a picture or photograph comes out more strongly in monocular vision (p. 151). He is mistaken, however,

in thinking that he has been the first to notice this. Cp. Stricker, *Studien über die Association der Vorstellungen* (1888), where it is referred to as a fact known to experts, and an explanation is sought.] G. Lechales—La géométrie générale et les jugements synthétiques *a priori*. [A rejoinder to M. Renouvier's criticism of the author's attempt to interpret "general" or non-Euclidian geometry in the service of rationalism; see *Critique Philosophique*, 1889, Nos. 9 and 11.] Analyses, &c. (F. H. Collins, *An Epitome of the Synthetic Philosophy*, &c.). Rev. des Périod. Correspondance (F. Picavet—Les manuscrits de M. de Biran). No. 9. A. Lalande—Remarques sur le principe de causalité. [The idea of cause is only an approximation, a sort of symbol useful in practice, but without any scientific or philosophical rigour. All science is at bottom a problem of mathematics. Physical laws are really mathematical laws; but often the relations involved are too complex for us to calculate. When this is so, we assume that there is a mathematical relation if we could only discover it, and in the meantime proceed to determine the relation approximately by experiment, as we might do, for example, in the case of the ratio of the circumference of the circle to its diameter, if we could not deduce it. "The true foundation of induction is therefore the universal validity of mathematics, which itself rests in ultimate analysis on the principle of identity; and it is because a perfect understanding could deduce, that a finite understanding can legitimately make use of induction." Science passes successively through the stages (1) of mere classification, (2) of approximate "causal" laws, and (3) of rigorous mathematical deduction. Mill's theory of induction supposes the second stage, which is only transitional, to be definitive. The bond is evident between the empirical doctrine and the way of thinking that is peculiar to that stage. "A more advanced state of science, manifesting the mathematical principles on which it is founded, must on the contrary bring back the mind to rationalism."] J.-M. Guardia—Philosophes espagnols: J. Huarte. A. Espinas—Les origines de la technologie (fin). [Describes the actual state of the arts corresponding to the "physico-theological" doctrine.] V. Egger—Un document inédit sur les manuscrits de Descartes. Notices bibliographiques. Rev. des Périod.

RIVISTA ITALIANA DI FILOSOFIA.—An. v. 2, No. 1. L. Credaro—Il passato della storia della filosofia. [Reviews the development of History of Philosophy from the earliest times to the present. The conclusion is that, within the modern period, after having been first a blindly credulous collection of biographies of philosophers or a superficial and subjective narration, then a critical exposition not independent of a religious principle, afterwards a critical exposition in the service of some philosophical school, it has at length constituted itself as an independent and purely historical science.] G. Zuccante—Fatti e idee. [A protest against exclusive devotion to "facts" as distinguished from speculative "ideas" in science, and against "false realism" in art. Without speculation there would be no science. "True realism" takes account of the ideal element in reality, while "false realism" truncates reality by proscribing its ideal element. Science is not hostile to art, but has furnished it with new material which it has not yet quite learnt how to use.] G. Rossi—I principii Newtoniani della filosofia naturale. [Though Newton confined himself to geometrical demonstrations, his investigations were guided by a general philosophical view of nature, and, without this general view, he would not have discovered the true system of the world.] S. Ferrari—La scuola e la filosofia pitagoriche (iv.)

[Comparison of the Pythagorean with other ancient schools, and discussion of the innovations of Philolaus.] L. M. Billia—Il nuovo regolamento delle scuole normali. Bibliografia, &c.

ZEITSCHRIFT FÜR PHILOSOPHIE, &c.—Bd. xcvii., Heft. 1. G. Glogau—Ueber Goethe. Studie zur Entwicklung des deutschen Geistes. J. Volkelt—Das Denken als Hilfsvorstellungs-Thätigkeit und als Anpassungsvorgang (ii.). [The influence of Darwinism on Theory of Knowledge has shown itself in the attempts made by Avenarius, Shute, Mach, and others, to explain scientific thought as the expression of a "principle of adaptation". The principle has really some "anthropological" application; man adapts himself to his surroundings by means of scientific knowledge. This application "positivists" mix up with the strictly epistemological application of the principle—which alone is here in question. Even in its epistemological application its sense varies. Sometimes it is proposed in the form of a principle of "economy," or least expenditure of energy, sometimes as a principle of "greatest useful result". In its first and most plausible form, though it explains some scientific processes, it fails to explain science as a whole. Nor do we get a more favourable result when we employ the psychological test. Scientific thought does not actually proceed by trying which way of thinking is easiest. All the objections apply more strongly when for "ease" is substituted "pleasurable expenditure". The principle in its other form, which views knowledge as the mode of conception that leads to the most useful practical results, fails to indicate any method of attaining such results. To arrive at a method we have to call in some process of "mediation," and this is to fall back on a theoretical criterion. Rejection of the principle on epistemological grounds is here again confirmed psychologically. "Whatever scientific investigation I may be following, I never find that the decisive statement of the question runs thus: How must the facts in hand be causally supplemented and ordered so that a result as large as possible may be yielded for the government of nature and for action?" So far, the logical necessity that thought is found in the end to imply has not been resolved into any more primitive elements.] H. Bender—Ueber das Wesen der Sittlichkeit und den natürlichen Entwicklungsprocess des sittlichen Gedankens (i.). [Three "grounds of determination" of action are distinguished: (1) "general good," the end of the non-egoistic strivings, (2) "own good," the end of the egoistic strivings, (3) "own happiness," the end of desire for the individual; this end being composed of egoistic and non-egoistic satisfactions. The conception of the general good must be recognised as the highest objective ground of determination. Only on the basis of this principle can a system of ethics satisfying all legitimate claims be built up. Actions are objectively moral when they are serviceable to the common good; subjectively moral, when they proceed from an unselfish inclination to serve the common good; moral in the highest sense, or truly good, when they are both actually in accordance with the moral law and proceed from a truly good disposition, that is, a disposition unselfishly regardful of the interests of others.] Recensionen. Heft 2. K. Joël—Zur Geschichte der Zahl-principien in der Griechischen Philosophie. [The philosophic tendencies that find expression in the elder Ionians and the Pythagoreans are the impulse to seek unity, and the parallelising and antithetic impulse; (other impulses being the discriminating, and the mediating and concatenating impulse). Their speculations are here examined at length from the point of view indicated in this general formula.] H. Bender—Ueber das Wesen der

Sittlichkeit, &c. (ii.). [Kant's separation of duty from inclination is examined, and is found to rest on the classing together of all "inclinations" as egoistic. There are, however, non-egoistic inclinations. The Kantian separation having been got rid of, the "subjectively moral content of our feelings" is found to be proportional to the degree they involve of unselfish and impartial care for the weal and woe of others. Mingled as this is with impulses of personal sympathy and friendship, which probably always contain both non-egoistic and egoistic elements, the degree to which it is present can hardly ever be determined with accuracy.] Dr. Hayd—Die Wissenschaft des Wissens von Wilh. Rosenkrantz (i.). Recensionen. Notizen, &c.

PHILOSOPHISCHE STUDIEN.—Bd. vi. Heft 2. G. Martius—Ueber die muskuläre Reaction u. die Aufmerksamkeit. [A considerable research, in two parts, bearing upon L. Lange's distinction of "sensory" (or "complete") and "muscular" (or "shortened") reaction, adopted by Wundt for his general theory of apperception, and also by Münsterberg in his assault upon this theory (see MIND No. 58, p. 284). In the first part, Martius fails to get confirmation of Münsterberg's experimental results with complex intellection, but finds, on the contrary, that with this the "muscular" reaction is lengthened (rather than shortened),—a fact which justifies Wundt's limitation of the use of this kind of reaction to the case of simple sense-impressions; finds also that, with complex intellection, a third form of attention is to be distinguished between the "sensory" and the "muscular"—one, namely, that is turned upon the associative connexion between the terms of the reaction, and which may be called "central". The second part contests, upon experimental grounds, Wundt's position that the "shortened" (or "muscular") reaction is to be regarded as a reflex or physiological one, rather than as having a properly psychical character.] G. Dwelshauvers—Untersuchungen zur Mechanik der activen Aufmerksamkeit. [The unfinished research referred to in notice of the author's *Psychologie de l'Apperception*, p. 575, above.] W. Wundt—Ueber die Methoden der Messung des Bewusstseinsumfanges. [After some general consideration of the problem of the range or scope of consciousness, proposes that it should be determined by way of successive impressions (preferentially sounds) rather than of simultaneous impressions (mainly visual), as hitherto; and takes occasion to uphold against F. Schuman (in pt. i. of the new *Zeitsch. f. Psychol. u. Phys. d. Sinnesorgane*) the presupposition made in all previous investigation of the subject, *viz.*, that we can have immediate intuition of the (qualitative or quantitative) likeness or difference of complex sense-presentations only when each of the two things compared is present to consciousness as a simultaneous whole.] W. Brix—Der mathematische Zahlbegriff u. seine Entwicklungsformen (iii.). [The concluding two chapters—"General Concept of Number" and "Logical Development of the Concept of Number"—of the very elaborate essay continued through last three parts of the *Phil. Stud.*]

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE.—Bd. iii., Heft 4. P. Natorp—Demokrit-Spuren bei Platon. [Important and characteristic positions of Platonism, such as the geometrical representation of the world, the high estimate of mathematics generally, the "subjectivation of qualities," are related to the Democritean positions. Plato arrived at them under the same "Eleatic-Pythagorean incitations" that had impelled Democritus. He arrived at them by a way of his own, but—as the author seeks to show at length—not without taking account of

the thoughts of Democritus and working them up into his own system. This relationship is the reason why Democritus is so little referred to by Plato; for Plato as a rule names only when he contests. He repeats Democritus without having proceeded from him, and so has no direct inducement to take account of him. For the rest, in ethical discussions, where he is conscious of dependence, he refers to Democritus as distinctly as to others who are not named, but whose doctrines must have been easily recognised by contemporary readers.] C. Hebler—Zu Platon's *Timæus*, S. 84 Bf. R. Eucken—Aristoteles' Urtheil über die Menschen. [Aristotle's view of human life was partly determined by reference to a Platonic ideal of life in detachment from the life of the average man and in opposition to it, but received its distinctive character from the effort to bring this ideal into relation with the motives of ordinary human nature. In his conception of human nature as it is, he simply put together the ideas offered to him by his social surroundings; that is, his point of view was distinctively Hellenic. "Self-love," in its lower or in its nobler form, is regarded by him as the chief impulsive force of human action. The way in which the ideal is brought into relation with ordinary motives is by a series of gradations. From average men are distinguished the incorrigibly bad as well as the truly good; and among the impulses not strictly good are distinguished those that are more and those that are less adapted to produce virtuous actions. The ordinary man can thus be regarded as capable of being trained in habits of virtue. In politics a still more favourable view is taken of the possibilities of human nature; and this finds its justification in Aristotle's doctrine of the "summation" of reason in the community.] C. E. Ruelle—Damascius.—Son traité des premiers principes (ii.). L. Stein—Ein ungedruckter Brief von Descartes. [A letter of Descartes to "M. Dozem, gentilhomme Allemand," on the solution of an equation, taken from the excerpts made by Leibniz at Paris in 1675.] R. Stölzle—Die Erlanger Giordano Bruno-Manuscripte. [A detailed account of manuscript-copies of writings of Bruno discovered at Erlangen. They consist of commentaries on part of the *Physics*, &c., of Aristotle, and of writings *De Magia physica*.] G. Geil—Gottesidee bei Locke und dessen Gottesbeweis. [Locke arrives at the idea of God in two ways—by the psychological method of ascending from human attributes to divine attributes, and by Descartes' ontological method. While preferring the cosmological proof of the existence of God, he employs also the metaphysical method of proof from the intuitively known Ego, and here again he is under the Cartesian influence. It is a mistake to say, as some have done, that he professedly rejects the Cartesian proofs. He would not have them held for the only valid proofs, and he contends that Descartes' ontological argument does not by itself prove a *thinking* Deity; but he does not reject them. The use he makes of them is really, however, inconsistent with empirical philosophy.] Jahresbericht (I. Bruns, H. Siebeck, B. Erdmann, I. Bywater, P. Tannery, E. Radlow). Neueste Erscheinungen, &c.

PHILOSOPHISCHES JAHRBUCH.—Bd. iii., Heft 8. E. Kadeřávek—Ueber die Einführung der christlichen oder aristotelisch-thomistischen Philosophie an den philosophischen Facultäten (i.). C. Gutberlet—Der Kampf um die Willensfreiheit (iii.). [Continues the defence of indeterminism as upheld by Catholic orthodoxy; the doctrines opposed in the present article being mainly those of Wundt, Münsterberg, and Schopenhauer.] C. Braig—Eine mongolische Kosmologie (Schluss). [Treats of the Buddhists of Nepal; the account being founded on B. H. Hodgson's *Essays on the*

Languages, Literature and Religion of Nepal and Tibet (1874). Some approaches to a true theism, overwhelmed by anticipations of the monistic errors of Schelling and Hegel, Schopenhauer and Hartmann, are what the author finds in the cosmological speculations described.] M. Sierp—Pascals Stellung zum Skepticismus (iv.). Recensionen und Referate. Philosophischer Sprechsaal (Isenkrahe—Zur Kritik der thomistischen Erkenntnislehre). Zeitschriftenschau. Miscellen und Nachrichten.

ZEITSCHRIFT FÜR PSYCHOLOGIE U. PHYSIOLOGIE DER SINNESORGANE.—Bd. i. Heft 3. W. Uhthoff—Ueber die kleinsten wahrnehmbaren Gesichtswinkel in den verschiedenen Teilen des Spektrums. A. Döring—Die Ästhetischen Gefühle. Besprechungen. Litteraturbericht. [These last headings of the now regularly constituted new Review occupy about two-thirds of the part, and are characterised by a promising thoroughness, as well as comprehensiveness, of treatment. Of the two main articles, the first is of that very highly specialised kind which, to judge by the previous two parts, will apparently be a distinctive feature of the Review; the second, on the other hand, is an essay in general psychology which might very well have found its way into print in any of the older philosophical periodicals.] Heft 4. K. L. Schaefer—Ueber die Wahrnehmung u. Lokalisation von Schwebungen u. Differenztönen. H. Münsterberg—Die Association successiver Vorstellungen. [An account of the experiments that have confirmed the author in the position he had been led to take up (see MIND No. 58, p. 244), on general theoretic grounds, that to find a satisfactory psychophysical expression for (Contiguous) Association, it must be supposed always to take place between simultaneous elements, or in what is commonly called the co-existent form. His experiments are characteristically ingenious, but cannot be given even in barest outline here. The whole subject, of special interest and importance as it is, is reserved for detailed treatment on some future occasion.] G. Th. Fechner—Ueber negative Empfindungswerte. [Conclusion of a correspondence that had been carried on with Prof. W. Preyer, up to 1874.] Litteraturbericht.

NOTICES of some other periodicals are, accidentally, deferred.

X.—NOTES.

ON THE UTILITARIAN FORMULA.

The Utilitarian Formula—"the greatest happiness of the greatest number"—is notoriously ambiguous and indefinite. Whether increase of number in itself is an end is not generally discussed. Mr. Spencer at one place in his *Social Statics*, long since withdrawn, tacitly assumes it. Prof. Sidgwick discusses who of those beings brought into existence are to count in the greatest number benefiting under the formula, but he does not consider the question of increase of the number in pure abstraction. Mr. Spencer further declares that the formula implies rights to equal happinesses. Mill maintains that the formula is completed by a rider of equal claims and an arithmetical principle; there is no discussion of the relative claims of the rider and the formula should these happen to conflict. Ruskin in his *Munera Pulveris* undertakes to prove a coincidence of greatest happiness and happiness of the greatest number; this is a specimen of the kind of elucidation that the utilitarian principle requires at the present stage. The subject is important and practical and has probably been more fully treated elsewhere.

We here have to do with the metaphysical element in the problem of philosophical socialism, which must precede all the difficulties with regard to physical effects. I use the words 'physical' and 'metaphysical' in a special sense, which I think will be serviceable. Whether mere increase of number promotes happiness like warmth, and within what limits; whether greatest equal happiness will be coincident with and secured by the same means as absolute greatest happiness, and by what means they are to be brought about, are as I should say, physical questions. But beyond these the metaphysician must ask what is the ultimate end required—greatest total happiness, or greatest amount of equal happinesses, or what compromise between these two. If these are physically coincident, then the metaphysical element of the problem so far vanishes. Yet it must be entertained for the present as a potential element. Similarly with regard to the element of number. This requires explication.

In the formula, is "greatest number" to be taken to mean the greatest number of those who will come into existence, or is there an independent desire that the number of individuals should be as great as possible? Supposing that by our mere fiat we could bring into existence a number of beings destined to the present or the probable fate of human beings, would we do so? The question could probably be more accurately stated, but the foregoing is sufficient to indicate its nature. Supposing again that, while by bringing a number of beings into existence we increased the total quantity of happiness, we at the same time diminished the amount available for each, would we bring these additional beings into existence?

In like manner, if by equalising amounts of happiness we decreased the total amount, would we will this to be done? If, as was hinted, we split the question of philosophical socialism up into its parts, we find in the first place this substantial question of pure metaphysics, of which the following is an attempt at an approximate statement in simplest abstract form. Supposing that there were two men of different capacities of enjoyment, and a substance of uniform quality to be distributed among

them, so that say the quantity of enjoyment which one unit of it would give to one of them, A, would be double that which it would give to the other, B. Suppose, further, that these two men constituted the universe of living beings now and to come, and suppose that the amount of enjoyment afforded did not diminish or increase with the amount of the given stuff already enjoyed by either of the men, so that by giving all to A the total enjoyment of happiness produced would be double that produced by giving it all to B. How would we distribute the substance? This question, which could again doubtless be stated with more or better conditions is the fundamental philosophical question necessitated by the very terms of our formula, since it is not evident that the whole amount of happiness is increased by its distribution over a large number. Would we give more to A in order that the total quantity of happiness might be greatest, or more to B in order that their lives might be more nearly equal in happiness; or equal amounts to each? In ordinary social life, of course, the importance of this question is traversed by the fact that means of satisfaction continue and multiply existences, and also by the fact that the means of satisfaction are not uniform, this man being pleased with this and that man with that; but yet the question in its abstract form is very important as various degrees of approximation to the circumstances described are met with, often indeed pretty close in similarity.

The question of a third end, independent of both greatest happiness and absolute justice and including all rights, is only mentioned here to be reserved. For the ultimate end as implied in the formula, no happiness should be transferred from one to another *unless it is to be increased in amount thereby or to improve the distribution*. It is just possible for one to maintain that there is a law forbidding transference even to secure either of these ends. Mr. Spencer maintains this law as a means, and many of his earlier arguments would I think go far to establish it as an end, although it seems somewhat strange, almost like a superstition. I must approach the question in this way:—Endeavour by an effort of abstraction to consider myself and another alone in the world and imagine the two of us bent on different courses of action, myself convinced beyond doubt that for him to go his way would mean destruction to both, but that by willing to prevent him I could save both, then try to judge whether I could still allow him to go. If any judgment were possible, I would approach to an ascertainment of its being possible to desire the maintenance of rights whether or not these were connected with happiness. I must add that the universe is supposed to end with us two, this abstraction seeming to be necessary. No judgment comes. Possibly the abstraction does not correspond to any physical possibility.

By simple inspection we recognise many acts as those which should be done, and by induction we class these acts under three heads—the maintenance of rights, the production of happiness, and the equalisation of happinesses. There is a strong and almost overwhelming tendency to bring the induction of rights under the induction of happiness. This calls for a strong effort to dissociate them, often repeated in the history of philosophy. The securest foundation for their connexion would be the failure to realise the opposite. Whether it is conceivable that a maintenance of right should lead to unhappiness or wrong distribution is a difficult question, requiring clear apprehension of the terms right, happiness, distribution. I fail to see clearly how Mr. Spencer can base the proposition that rights must be maintained on the propositions that they must lead to happiness, and that it is impossible to determine

what happiness is. Is this possible, and how? To elucidate my difficulty, take the following indefiniteness, which I think has not been cleared by Mr. Spencer in his deduction of greatest happiness from maintenance of rights—to say nothing of the vagueness of the end there specified: (1) in the ignorance of what happiness is, (2) in the indefiniteness of the number and kind of beings interested, and (3) in the indefiniteness of the element of ultimate distribution; for greatest amount of happiness cannot be assumed as Mr. Spencer assumes it, as the sole end. A violation of right connotes a desire prevented from being satisfied, or a pain inflicted. This is in itself a loss, but it might be made good by being the cause of the satisfaction of desires to come, either otherwise certain to arise, or themselves the result of the violation of right, or the acquisition of happiness, or avoidance of pains. Those who maintain that this result is impossible may mean to say either that the mere excision of the violation of the right with all its consequences would of itself leave the sum of happiness and its good distribution greater in value than it would be if the violation were committed; or they may mean to say that a mode of positive action is conceivable and possible which would secure equivalent results to those which are the compensatory consequences of the violation of rights or better consequences still.

To return to the chief point. It is clear that there is something more in the utilitarian ultimate conception than merely the greatest happiness *plus* an arithmetical truth. For it would not be a matter of indifference that all happiness should be transferred to one person provided it were not thereby diminished in arithmetical sum. Whether this is possible or not is a physical question. Metaphysically, we must entertain the absurd supposition and give judgment upon it if possible; whence it becomes evident that there is a second independent element in the utilitarian ultimate conception. This is the element which Mr. Spencer has brought out in the metaphysical part of his attack on the utilitarian formula, and I would propose to call it absolute justice. Whether it may be held correct to say that all (human) beings have an equal *right* to happiness, the product, or not, is another question. I mean as a question of words. At any rate if this absolute-justice element in the great conception be admitted, all subsidiary rights as means to greatest general happiness should at utmost be classed under relative justice. Of course, if there are rights not relative to the two admitted ends, the claim of good distribution ultimately to the title of absolute justice may be disputed in favour of these rights which are not relative.

It may be permissible to suppose that, by pursuing relative justice or some other means, we should secure at once the greatest possible amount of best-distributed happiness to the greatest possible number of (human) beings. In this case the metaphysical questions would have no bearing—no counterpart in physical possibility: which might account for the paralysis of the understanding in examining them.

JAMES SUTHERLAND.

THE ARISTOTELIAN SOCIETY FOR THE SYSTEMATIC STUDY OF PHILOSOPHY (22 Albemarle Street, W.).—The only meeting since last record has been the Annual Business Meeting on June 16, at which all the members of the Committee were re-elected for the ensuing (the twelfth) Session. This will commence on Monday, Nov. 8, when the President will deliver an Address on "The Laws of Association," at 8 o'clock p.m.



